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SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS Unclassified
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/ AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION Naval Postgraduate School 6b. OFFICE SYMBOL *(If Applicable)* 38	7a. NAME OF MONITORING ORGANIZATION Naval Postgraduate School
6c. ADDRESS *(city, state, and ZIP code)* Monterey, CA 93943-5000	7b. ADDRESS *(city, state, and ZIP code)* Monterey, CA 93943-5000
8a. NAME OF FUNDING/SPONSORING ORGANIZATION 6b. OFFICE SYMBOL *(If Applicable)*	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS *(city, state, and ZIP code)*	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.

11. Title (*INCLUDE SECURITY CLASSIFICATION*)
THE UNITED STATES, LATIN AMERICA, AND THE POTENTIAL FOR A NAVAL AND DEFENSE INDUSTRIAL PARTNERSHIP: THE CASE OF BRAZIL

12. PERSONAL AUTHOR(S)
ANDERSON, ERIK NARVE

13a. TYPE OF REPORT	13b. TIME COVERED FROM / TO	14. DATE OF REP*(year, month,day)*	15. PAGE COUNT
Master's Thesis		March 1993	242

16. SUPPLEMENTARY NOTATION
The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

17. COSATI CODES			18. SUBJECT TERMS *(continue on reverse if necessary and identify by block number)*
FIELD	GROUP	SUBGROUP	U.S.-Latin America; U.S. navy; U.S. security; defense industrial policy; Brazilian armaments; U.S.-Brazil

19. ABSTRACT *(Continue on reverse if necessary and identify by block number)*

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20. DISTRIBUTION/AVAILABILITY OF ABSTRACT [X] UNCLASSIFIED/UNLIMITED [ ] SAME AS RPT. [ ] DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL Thomas C. Bruneau	22b. TELEPHONE (Include Area Code) (408) 656-2521 22c. OFFICE SYMBOL Code NS /Bn

DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted SECURITY CLASSIFICATION OF THIS PAGE
All other editions are obsolete Unclassified

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THE UNITED STATES, LATIN AMERICA, AND THE POTENTIAL FOR A NAVAL AND DEFENSE INDUSTRIAL PARTNERSHIP: THE CASE OF BRAZIL

by

Erik N. Anderson
Lieutenant, United States Navy
B.A. University of Virginia, 1981

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF ARTS IN NATIONAL SECURITY AFFAIRS

from the

NAVAL POSTGRADUATE SCHOOL

MARCH 1993

National Security Affairs

ABSTRACT

The purpose of this thesis is to analyze U.S. security interests in Latin America and examine the potential for a Latin American nation, under a revised maritime strategy, to become both a naval and a defense industrial partner of the United States.

The thesis is divided into three parts. The first examines the need to revise the U.S. maritime strategy and makes a case for a greater focus of that strategy on Latin America. The second part assesses the relative strengths and weaknesses of Latin American national and maritime capabilities. The third part examines the potential for armaments cooperation between the United States and Brazil. The thesis concludes that the potential for collaboration between the United States and Brazil is limited because of political and economic constraints in both countries.

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I. INTRODUCTION

The United States must chart a new strategic course as a result of the momentous world events that led into the 1990s. Few could have predicted the extraordinary changes that now confront the global community. A totally new international arena has been conceived. The Soviet Union has collapsed, many of the world's political boundaries have been redefined, and the emergence of free trade areas in the Western Hemisphere and Europe have redefined economic borders. A global economic recession also influences the international community. Measured on a scale, these events are comparable to those created by World Wars I and II.

In the dawn of this new era, political and economic interests, alone, require that the United States conduct a thorough review of its security interests, the status of its alliances and the posture of its military state of readiness, both operational and technological. In an effort to undertake a small part of this task, the purpose of this thesis is to analyze U.S. security interests in Latin America and examine the potential for a Latin American nation, under a revised maritime strategy, to become both a naval and a defense industrial partner of the United States.

The thesis is divided into three main parts. The first part examines the need to revise the U.S. maritime strategy. The world political environment has been continuously changing since the late 1980s, but the single most significant political change has been the dissolution of the Soviet Union. Although revisions to the world's political landscape a The United States must chart a new strategic course as a result of the momentous world events

that led into the 1990s. Few could have predicted the extraordinary changes that now confront the global community. A totally new international arena has been conceived. The Soviet Union has collapsed, many of the world's political boundaries have been redefined, and the birth of the European Community, as well as the emergence of free trade areas in the Western Hemisphere, have redefined economic borders. A global economic recession also impacts the international community. Measured on a scale, these events are comparable to those created by World Wars I and II. In the dawn of this new era, political and economic interests, alone, require that the United States still unfolding, the predominant actor in Eastern Europe is now Russia. Russia maintains the world's most capable military force, next to that of the United States, so the U.S. must be prepared, worst case, to face this force. However, the Cold War is dead. Therefore, in relative terms, other security issues have risen in importance, and the U.S. has had to re-focus both its priorities and its strategy to better confront these strategic interests, especially in the Third World.

The identification of strategic regional interests and the articulation of a grand strategy, within the framework of U.S. security objectives, makes a case for a greater focus of the U.S. maritime strategy on Latin America. No longer a backwater region, Latin America is a region that offers both threat and opportunity. The United States must attempt to control the threats and harness the opportunities. Latin American threats to U.S. security include political instability, debt, drugs, insurgency, terrorism, illegal immigration, and threats to the environment. Opportunities range from trade to military security. These points suggest that the U.S. must better address its relationship within the Western Hemisphere as the region becomes

increasingly important to the United States. Thus, the first part of this thesis articulates the role of Latin America in a revised maritime strategy and the rationale for both U.S. and Latin American interest in this endeavor. It is a proposition of this thesis that both Latin America and the United States stand to gain by increasing economic, commercial, military and political ties. Therefore, in order to protect these interests, a joint effort by both Latin America and the United States is required to maintain their mutual security.

In order to calculate the ability of Latin American navies to act as force multipliers, relative strengths and weaknesses must be assessed. Therefore, the second part of the thesis serves as a calculation of Latin American national and maritime capabilities. A review of national power indicators gauges the ability of each state in Latin America to support a naval infrastructure. Compared by matrix, the essential elements of power of each nation in Latin America are ranked against each other. The top-rated countries include Argentina, Brazil, Chile and Mexico. Another study ranks their relative naval capabilities. In this case, Argentina, Brazil, Chile and Peru were accorded top honors. In both cases, however, Brazil was ranked first by a wide margin. In fact, along with India, Brazil is considered the most capable maritime nation in the Third World. The outcome of the second part of the thesis suggests that Brazil could probably best support a maritime partnership with the United States in naval operations. Whether Brazil could also support a cooperative defense research, development and/or production venture with the United States is less clear.

The third part of this thesis examines the potential for armaments cooperation between the United States and Brazil. Over the last decade, the growth of indigenous arms industries, the internationalization of the arms

market, and the contraction of the U.S. defense budget have increased U.S. interest in international armaments cooperation. Collaborative ventures are considered attractive because, by pooling resources, there is the potential for monetary savings, increased standardization of allied equipment and the potential to produce a product superior to that which a single participant might create. However, a high level of military, governmental and industrial cooperation are often required for international armaments cooperation to be successful. Indeed, an entire project can be placed in jeopardy over an unresolved disagreement among participants. Largely confined to transatlantic arrangements with Europe, there has been little U.S. involvement in international armaments cooperation with other countries. Therefore, the question exists whether the United States can successfully collaborate with a Latin American nation.

A review of NATO experiences in international armaments cooperation provides a number of lessons which suggest that such an arrangement can be coordinated if the proper criteria are met. A case study of the Brazilian arms industry illustrates that there is definitely a potential for collaboration between the U.S. and Brazil, although such cooperation would probably be limited to the lower tiers of arms production, such as in parts and components. However, a number of problems, especially political and economic ones, hinder the possibility of any U.S.-Brazilian armaments cooperation. Indeed, many of these same problems limit the level of Brazilian involvement in a revised U.S. maritime strategy.

II. REVISING THE U. S. MARITIME STRATEGY

The purpose of this chapter is to examine the implications of a changing world on the future security environment of the United States and the role of Latin America in the U.S. maritime strategy. The objectives of this chapter are threefold: first, to briefly review the U.S. maritime strategy within the framework of the U.S. security objectives; next, to outline some of the threat implications of a changing international environment and suggest an alternative strategy to adapt to these new circumstances; and finally, to make a case for a greater focus of the maritime strategy on Latin America.

A. STRATEGIC NATIONAL SECURITY INTERESTS

The national security strategy of the United States is designed to protect and advance those values that the nation prizes through the support of its political, economic, and security objectives worldwide. The primary national interest is "the survival of the United States as a free and independent nation, with its fundamental values intact and its institutions and people secure."[1] The major attendant interests include a healthy U.S. economy; a stable and secure world; and the growth of human freedom, democratic institutions, and free market economies.

The United States has at its disposal diplomatic, informational, economic and military elements of power. These elements are employed by the United

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[1]National Security Strategy of the United States, The White House, (January, 1988), p. 1.

States to influence the behavior of other nations and entities to behave in a manner compatible with the national interests of the United States. The national military strategy, as an element of the national security strategy, prescribes the manner in which military power will be developed and employed to pursue the national objectives. U.S. defense strategy may be summarized as follows: "to deter aggression and coercion against the United States and its allies, friends, and vital interests. Should deterrence fail, to seek the earliest termination of conflict on terms favorable to the United States, its allies, and its national security objectives while seeking to limit the scope and intensity of the conflict."[2] To achieve these national security goals, the U.S. national military strategy is founded upon the principles of deterrence, forward defense, and alliance solidarity.

As the maritime component of the national military strategy, the United States Navy has proven itself one of the most effective vehicles for securing the national security and foreign policy objectives of the United States, whether in peacetime, crisis, or war. Although the U.S. Navy acts as only one of a number of elements employed to meet the national security objectives of the United States, it only stands to reason that as a maritime nation the United States should place great reliance on its naval assets. Based on the strategic duties of timely and sustained operations overseas, naval tasking in support of the national military strategy provides a forward deployed, flexible response to any situation. The critical mission of the Navy is sea control.[3]

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[2] Harry D. Train II, "Seapower and Projection Forces," in American Defense Annual: 1986-87, ed. Joseph Kruzel, (Lexington, MA: D.C. Heath and Company, 1986), p. 122.

[3] Adm. Carlisle A.H. Trost, USN, "The Navy: Globally Committed," Defense 89, May/June, 1989), p.17.

Sea control is required so the nation can have uninterrupted use of the sea lanes to sustain ground and air forces deployed overseas for forward defence, or for importing raw materials to maintain productivity of our own or our allies' industrial bases. Another goal of sea control is to prevent enemy use of the sea lanes to attack US or friendly territory or sustain his overseas allies. A final goal is to provide secure operating areas for power projection.[4]

1. The U.S. Maritime Strategy of the 1980s

In a special supplement to the January, 1986 issue of the U.S. Naval Institute Proceedings, Admiral James D. Watkins outlined the "Maritime Strategy" to help think and plan for the global use of U.S. and allied naval forces "from peacetime through global war to war termination."[5] As an unclassified document, Watkin's article represented the first public dissemination of a strategy that was initially codified in as a secret document in 1984. Cast neither as doctrine nor as a detailed war plan, the maritime strategy was developed as a dynamic subset of the national strategy. It provided a forum for naval strategic thinking - something which had been notably absent in the previous decade - to create an evolving consensus of thought for policy-making.[6]

Watkins asserted that the chief characteristic of the modern era is a permanent state of violent peace due to the volatility of the international

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[4]Alva M. Bowen, Jr., "US Naval Strategy - Matching Means to Ends," Naval Forces, No. V, (1984), p. 39.

[5]Admiral James D. Watkins, "The Maritime Strategy," in U.S. Naval Institute Proceedings, (January, 1989), p.4.

[6]John B. Hattendorf, "The Evolution of the Maritime Strategy: 1977 to 1987," Naval War College Review, (Summer, 1988),p. 26. For an excellent overview, also see Michael A. Palmer, Origins of the Maritime Strategy: American Naval Strategy in the First Postwar Decade, (Washington, D.C.: Naval Historical Center, Department of the Navy, 1988).

environment.[7] Therefore, the major goal of the U.S. maritime strategy was to promote international stability by supporting regional balances of power and by controlling crises. However, because the Soviet Union of the mid-1980s was recognized as the primary threat to the national interests of the United States, the subject which received by far the most formal and detailed treatment in the "Maritime Strategy" was the U.S. maritime response to the Soviet Union.

The "Maritime Strategy" was based on three levels of naval operations - peacetime steaming, crisis response, and war fighting - but the keystone of the strategy was deterrence. Under this strategy, three phases were envisioned. The first phase recognized the potential for a confrontation between the United States and the Soviet Union and was marked by an effort to deter escalation. In the second phase, the U.S. was to seize the initiative by the deep forward deployment of both U.S. and allied maritime forces. It was recognized that early pre-positioning and the rapid deployment of forces and equipment by sealift was essential for a transition to global war in the event deterrence failed. In acknowledgment of the threat to the European Central Front by the former Soviet Union, the maritime strategy was gauged to support the ground campaign in Europe by overcoming the challenges presented by the Soviet Union's own naval forces. The U.S. sought to gain the advantage by the containment of the Soviet fleet. Since the preponderant number of the former Soviet Union's naval and air bases, equipment and other military facilities were situated near the North Cape of Norway, in the area of the Kola Peninsula, U.S. planning and maritime force concentration

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[7]Watkins, "The Maritime Strategy," in U.S. Naval Institute Proceedings, (January, 1989), p.5.

was therefore geared towards the North Atlantic. The final phase of the U.S. "Maritime Strategy" was a continuation of the previous ones, except it sought for the aggressive termination of war, on terms favorable to the U.S. and its allies, through the destruction of the Soviet fleet. Placing great emphasis upon inter-service cooperation and allied support it was, ultimately, a coalition strategy.

According to Colin Gray, the U.S. maritime strategy introduced an unacceptable element of risk into the Soviet calculus of war. He believed that the incorporation of U.S. and NATO maritime forces, in a protracted global context, would have denied the former Soviet Union a plausible opportunity for victory because the conduct of such a war would have been "on terms maximally disadvantageous to the continental empire of the Soviet Union."[8] However, it was believed that if the former Soviet Union had been forced to concentrate on a single theater war, especially if it was fought at a conventional level, that they could have won such a conflict.[9] Therefore, the maritime component of U.S. national strategy established a "balancing" deterrent that a conventionally-strengthened NATO land force could not create alone.[10]

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[8] Colin S. Gray, "Maritime Strategy: Europe and the World Beyond," in Naval Forces, Vol. IX, No. V, (1988), p. 40.

[9] For an excellent overview and educated Western speculation on the subject of the evolution of Soviet military theory and perceptions of nuclear and conventional warfare see John G. Hines, Phillip A. Petersen, and Notra Trulock III, "Soviet Military Theory from 1945-2000: Implications for NATO," in The Washington Quarterly, (Fall 1986), pp. 117-137. Also see, Phillip A. Petersen and John G. Hines, "The Conventional Offensive in Soviet Theater Strategy," in Orbis, Volume 27, No. 3 (Fall, 1983), pp. 695-739.

[10] Gray, "Maritime Strategy and the World Beyond," p. 40. Gray's case is complemented by Linton R. Brooks, "Naval Power and National Security: The Case for the Maritime Strategy," International Security, (Fall 1986), pp. 58-88, which outlines the deterrent role of the U.S. Navy within the context of the current maritime strategy.

Greatly simplified, the U.S. maritime strategy of the 1980s asserted that by carrying the war to the Soviet Union and neutralizing their naval fleet, U.S. maritime forces would contribute to the NATO effort on the Central Front by removing the Soviet threat to U.S. and allied sea lines of communications (SLOCs) and force the Soviet Union to face yet another front. Accepted as a statement of purpose, the "Maritime Strategy" provided a guideline for policy. However, billed as a strategy for "today's forces, today's capabilities, and today's threat,"[11] the face of the threat of the 1980s has changed and requires a reassessment of the maritime strategy.

a. The Former Soviet Union: A Diminished Threat

The U.S. maritime strategy of the 1980s placed proper strategic emphasis on the Soviet Union because over the previous four decades the Soviet Union had been the primary adversary of the United States. With the dissolution of the Soviet Union, their status is different today. Deterring the forces of the former Soviet Union, especially Russia, remains a primary challenge to the U.S. Navy since "no other nation poses a military threat to the United States and its allies even remotely comparable to that posed by the [former] Soviet Union."[12] In a certain sense, the former Soviet Union had been the perfect foe since they provided the United States a tangible and relatively predictable threat axis. However, external perceptions of the image of the former Soviet Union as the bogeyman have all but disappeared, perhaps with major strategic implications for the United States.

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[11]Watkins, "The Maritime Strategy," in U.S. Naval Institute Proceedings, (January, 1989), p.4.

[12]Frank C. Carlucci, "Report of the Secretary of Defense to the Congress on the FY 1990/FY 1991 Biennial Budget and FY 1990-94 Defense Programs, January 9, 1989," (Washington, D.C.: G.P.O., 1989), p. 12.

Despite the change in the status of the former Soviet Union, there remains many unanswered questions. As recently as 1988, the Soviet military realized that the Soviet Union needed the benefits of economic reconstruction if it were to meet the requirements of competition with the West.[13] Arms control provided an avenue for limiting the fields of competition to which the Soviets needed to divert resources, in a fiscally-constrained environment, and helped to "reinforce proclivities within Western elites and publics to perceive the Soviet Union as less of a military threat than in the past."[14]

The "magic" of glasnost helped to create a strong movement for disarmament in both Europe and in the United States. Eugene V. Rostow may have been correct in warning that the Soviets believed "...that a nearly mystical faith in arms control has become the opiate of Western opinion in general and American opinion in particular."[15] In 1987, the Intermediate-range Nuclear Forces (INF) Treaty was signed, thereby eliminating an entire class of ground-launched ballistic and cruise missiles in the 300 to 3,400 mile range. To establish a new level of "reasonable sufficiency," the Strategic Arms Reduction Talks (START), Conventional Forces Europe (CFE), and the Confidence and Security Building Measures (CSBM) conferences were slated to bring further reductions.

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[13]Phillip A. Petersen and Notra Trulock, III, "A "New" Soviet Military Doctrine: Origins and Implications," Strategic Review, (Summer 1988), p. 20.

[14]Petersen and Trulock, "A "New" Soviet Military Doctrine," p. 20.

[15]Eugene V. Rostow, "Why the Soviets Want an Arms Control Agreement and Why They Want it Now," Commentary, Vol. 83, No. 2, (February, 1987) pp. 19-26, as cited by Mary Tedeschi Eberstadt in, "Obituary for an Agenda," The National Interest, (Summer, 1988), p. 28.

The U.S. Navy initially managed to eschew involvement in arms control negotiations because the initial CFE talks on the "Atlantic to the Urals" zone excluded naval forces. However, the U.S. Navy was bound to undergo the paring knife in follow-on naval arms control negotiations tabled by the Soviet Union. During a visit to the United States, in July 1988, for example, Marshal Akromeyev, then senior military officer of the Soviet Union, made the point of telling Admiral Trost: "You! You're the problem! You and your Navy are the problem! You're too strong. You've got to get rid of your cruise missiles. You've got to get rid of some of those carriers.'"[16] The Soviet Union began to force the issue by unilaterally relegating a number of their warships and submarines to the scrap pile, making it very difficult for the United States to justify a continued requirement for the size and capability of the U.S. Navy.[17] However, as a land power, the Soviet Union depended primarily upon its internal lines of communications and, despite a massive expansion of the Soviet navy in the 1960s and 1970s, the Soviets still placed primary reliance on their rocket and ground forces. On the other hand, as an insular power, the United States has traditionally relied primarily upon the open seas to fulfill its national interests. Thus, the cutting of naval forces was to strike at the heart of U.S. power, but would represent more of a symbolic gesture on the part of the Soviet Union. The dissolution of the Soviet Union has only served to reinforce the issue of naval cuts.

The U.S. potential for sea control and power projection could be greatly hampered under naval arms control agreements. It must not be

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[16]Admiral C.A.H. Trost, U.S. Navy, "American Security Interests and the U.S. Navy," in Naval War College Review, Vol. XLII, No. 2, Sequence 326 (Spring 1989), p. 11.

[17]Interview, Commander Bruce McKenzie, USN, OP-603, Pentagon, 18 July 1989.

forgotten that the building of naval forces is much more time-consuming and capital intensive than in most other defense industries. The early retirement of surface combatants, aircraft carriers, and the transfer of combatants to the reserves, decreases the size and capability of deployed battle groups. Naval force reductions beyond the currently planned schedule will have a significant impact on future deployment schedules.

Defense Secretary Richard Cheney, for example, has explicitly stated that a six-month away/one year home naval deployment policy will not be violated. However, ex-Secretary of the Navy John Lehman made the same statement in 1986, and then broke it in 1987, due to the Terry Waite hostage crisis. Stepped-up commitments in the Mediterranean required the extension of the Kennedy battle group to supplement the Nimitz. Obviously, if the U.S. Navy already incurs difficulty meeting its current operational commitments, it will surely become even more difficult to meet them with a smaller force structure.[18] Each reduction in U.S. aircraft carriers will require a reappraisal of U.S. naval strategy.

b. Identifying Other Threats to U.S. Security Interests

Although it is prudent to match forces and capabilities with one's strongest potential adversary, it does not necessitate that one focus completely on that threat, especially if it may be considered an "extreme" contingency. Security arrangements have made the North Atlantic a relatively stable place

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[18]The minimum number of naval assets necessary to carry-out current mission requirements varies somewhat according to the source. Even the same source may extend different numbers. For example, Admiral Trost cited "14" deployable carrier battle groups as the minimum essential assets required to support our national military strategy in "The Navy: Globally Committed," Defense 89 (May/June), p. 16, but Trost then cites "15" active, deployable carriers as the minimum requirement in "American Security Interests and the U.S. Navy," Naval War College Review, (Spring 89), p. 15.

so that the likelihood of actual conflict, nuclear or conventional, in this region is low. While war is possible within Europe, especially within the newly independent nations that are groping to establish new governments, as evidenced by the civil war in Yugoslavia, it is unlikely that one of the former republics of the Soviet Union would begin a war on the Central Front against a NATO nation. Instead, judging by the fact that since World War II almost all armed conflicts have occurred in the Third World, future conflict will likely continue to break out in these other regions. Therefore, while the European theater cannot be neglected, U.S. defense planners should place increased emphasis on the more likely, non-apocalyptic scenarios.

The start of most future regional conflicts will probably not involve either the United States nor the First World countries, but the danger inherent in any Third World crisis is that conflict may adversely impact the national interests of these nations. Indeed, the incidence of U.S. involvement in Third World disputes may increase simply because of expanding U.S. economic interests into these different regions of the world. In the worst case, it is not implausible to imagine scenarios in which two warring states - perhaps North and South Korea - would cause the United States and the countries allied to North Korea to confront each other over their overlapping interests in that region. More likely, conflict in the Third World will not result in a major global confrontation, but it may still provoke the involvement of other nations outside of the direct dispute. Therefore, deterrence of conflict or control of crisis escalation can be crucial in ensuring that the impact on U.S. and allied interests will be mitigated.

Still, the threat posed by other countries and non-state entities to the rest of the world is growing. No longer the bi-polar world of the 1950's,

an evolving multi-polar world includes the rise of "middle power" states whose economic capabilities and military potential may become increasingly competitive with the United States in the next century. An increase in the potential magnitude for violence world-wide is cause for serious concern. This threat includes the proliferation of highly sophisticated missiles, chemical and biological weapons, tactical aircraft, submarines, and even nuclear weapons in many regions of the Third World. Granted, many Third World nations may have difficulty absorbing the hi-tech weapons systems that they purchase, hindering the maintenance and employment of these armaments, but that is not and will not be the case for every purchaser in the future. The growing number of Third World countries operating low to mid-technology indigenous armaments industries, for example, suggests an improving ability to manufacture weapons to their desired specifications and needs. It may be only a period of time before they can break into successively higher levels of sophistication and lethality.

From a maritime standpoint, it has been recognized for some time that Third World naval capabilities have been increasing - spurred by the threat of regional conflict. As one analyst notes, despite shortcomings, "the Third World navies in general possess sufficient capabilities to intimidate, harass, or, for a short time, interrupt Western seaborne transportation."[19] A case in point are conventional submarines. With over 40 navies world-wide operating submarines, many analysts believe that subs will become a mainstay of defense for Third World coastal nations. Diesel-electric submarines are difficult to locate when submerged, and are very competent

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[19]Milan Vego, "The Potential Influence of Third World Navies on Ocean Shipping," Naval Institute Proceedings: Naval Review 1981, (May 1981), p. 97.

operating quietly in shallow waters, such as those found at the mouth of harbors, enclosed waterways and passages, and on continental shelves.[20]

Now, third-generation diesel-electric submarine designs, such as the TR-1700 built by Thyssen Nordseewerke (TNSW) in West Germany and sold to countries such as Argentina, are vastly superior to the older conventional submarines in service and possess operational characteristics closer to those of nuclear submarines. It is understood that the TR-1700 is capable of maintaining a submerged speed of twenty-five knots for one and a half hours while prosecuting a target, and of remaining submerged for as long as 70 days.[21] Furthermore, new improvements such as the Italian-designed toroidal-enclosed cycle system, could increase the capabilities of the diesel submarine while making them more affordable. Operating without a requirement for surfacing every 20 hours, the toroidal-hull submarine stores exhaust within the hull for extended underwater travel, perhaps up to 2000 nautical miles before surfacing. Perhaps most importantly, toroidal-hull subs are touted as simple to run, are reportedly easier to build than steel plate submarines, and have a projected cost of only $40 million a copy - a bargain when compared to the price of a modern nuclear submarine.[22]

Although Third World capabilities are small in comparison to the might of the superpowers, the proliferation of increasingly sophisticated weapons poses a multitude of new threat axes to the United States.

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[20]The reasons for conventional sub advantages in shallow water and the difficulty associated with locating them is succintly described by U. Ljungdahl, "Submarines and ASW in Coastal Waters," Naval Forces, Vol. VIII, No. 1,(1987), pp. 82-88.

[21]Keith E. Wixler, "Argentina's Geopolitics and Her Revolutionary Diesel-Electric Submarines," Naval War College Review, Vol. XLII, No. 1, Seq. 325, (Winter, 1989), p. 94.

[22]Danielle Pletka, "Subs Surfacing All over the Globe," Insight, (June 5, 1989), pp. 34-36.

Obviously, state-sponsored and non-governmental organized terrorism using weapons in an indiscriminate manner pose serious problems. The U.S. strike on Libya in 1986 illustrated how easily the United States could be drawn into conflict by a Third World nation even when vital interests were not necessarily at stake. However, even in the case of more "responsible" states whose new weapons will only be used for self-defense, their enhanced capabilities still raise the threshold of intensity at which a conflict might be fought. Ironically, as the United States and the republics of the former Soviet Union progress in negotiations and agreements for arms control, thereby decreasing or limiting their relative capabilities, the relative capability and threat posed to world peace from these other axes grows.

U.S. decision makers have traditionally accorded very low priority to Third World conflicts and have not allocated nearly enough resources to properly address these issues.[23] Since regional conflicts in the future may well include the use of sophisticated conventional and other chemical, biological, and nuclear-fielded weapons, perhaps even with some launched by ballistic missile,[24] it would certainly be a misnomer to consider that all Third World conflicts will be "low-intensity." Thus, in a dynamic and ever-changing world, the United States must adapt to meet new challenges. Establishing and sustaining a credible deterrence against the former republics of the Soviet Union, remaining prepared for the failure of deterrence, and carrying out contingency operations in the Third World is a complex and

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[23]Jacques Gansler, Affording Defense, (Cambridge, MA: The Massachusettes Institute of Technology Press, 1989), pp. 32-33.

[24]James Tomashoff and Lewis A. Dunn, "Some Implications of a Changing Third World Military Environment," p. 26. Paper prepared for the SAIC (Science Applications International Corporation - McLean, VA) Conference on the Changing Dimensions of the Third World Military Environment, (20 June 1989).

increasingly expensive task. Therefore, perhaps the accomplishment of this mission might best be measured by how well the desired goals match available resources.

B. ARTICULATING A GRAND STRATEGY

Strategically, the United States analyzes the world in subsets, or regions. Within each region, the United States is committed to the objectives that will promote the national interest. However, setting priorities among the regions is extremely important because of force structure limitations. It is clear that if rational limits to policy objectives are not established, it is doubtful that many of the original objectives would be realized. This is especially critical in a fiscally-constrained environment, as reflected by the growing federal deficit of the United States. In addition, a gradual decline in the U.S. gross national product, relative to other economies in the world - such as Japan's, increases the impression that internal and external constraints on the U.S. economy are affecting the ability of the United States to support its expanding global security interests. As Robert Komer notes, "a perceived gap is emerging between U.S. interests and U.S. power."[25] However, even if resources were not a factor, Geoffrey Till cautions that "...an over-concentration on means rather than ends could easily distort conclusions in peacetime and lead to misconceived practice in war."[26] Hence it is of preeminent importance that the ends of American foreign policy be reconciled with the means. In short,

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[25]Robert Komer, "U.S. Defense Strategy," in American Defense Annual: 1986-1987, ed. Joseph Kruzel, (Lexington, MA: D.C. Heath and Company, 1986), p.22.

[26]Geoffrey Till and others, Maritime Strategy and the Nuclear Age, Second Edition, (New York: St. Martin's Press, Inc., 1984), p. 224.

the agenda of the maritime strategy in developing regional priorities should be derived from a global net assessment, a grand strategy.

> A grand strategy is a political-military, means-end chain...A grand strategy must identify likely threats to the state's security and it must devise political, economic, military, and other remedies for these threats.[27]

A logical first step in the development of a grand strategy is the identification of regional strategic interests to the state (ends). The next step is the ranking of current and anticipated threats to these interests. A third step is a realistic appraisal of U.S. and allied economic and industrial strength, military capability, resource constraints or other limitation (means). And finally, in the fourth step, a credible strategy may be woven which acknowledges and accounts for the discrepancies between the ends and means so that the threats may be neutralized.

The existence of a well-articulated, contemporary grand strategy enables the development of more effective planning and a more efficient use of resources.[28] On the other hand, differences in perceptions over geostrategic priorities can affect the consensus required for a rational and coherent foreign-security policy. Since the ability of the West to bring selective force to bear to stop aggression at points distant from the U.S. has declined since the 1950s, compared to that of many potentially hostile and increasingly powerful

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[27] Barry R. Posen, The Sources of Military Doctrine: France, Britain, and Germany between the Wars, (Ithaca: Cornell University Press, 1984), p. 13 as cited in Michael C. Desch, "The Keys that Lock up the World: Identifying American interests in the Periphery," International Security, Vol. 14, No. 1 (Summer 1989), p. 88.

[28] "A grand strategy is an integral part of a hierarchy that also includes foreign policy, strategy, and tactics. " Desch, "The Keys that Lock up the World: Identifying American interests in the Periphery," p. 88.

Third World nations, U.S. reliance on its allies has increased.[29] Unfortunately, as the U.S. need for strong allies worldwide is increasing,[30] the inclination of alliance members to respond on behalf of the United States may be decreasing. Ashley Tellis states that the European allies of the United States, for example, have generally believed that Soviet activity in the Caribbean, despite U.S. attempts to stipulate as otherwise, are an exclusive policy concern of the United States.[31] This type of attitude was reinforced by the course of events in Eastern Europe and the former Soviet Union. The "lack of an articulated grand strategy...."[32] prevents the United States from making an effective case why alliance support is still important and necessary. Thus it follows that a national maritime strategy derived from an articulated grand strategy will be most efficient in accomplishing assigned national security objectives.

1. Identifying Strategic Regional Interests

The identification and rank ordering of U.S. strategic regional interests, especially in peripheral areas, are key questions. Michael Desch distinguishes between two competing schools of thought. One school, the Neo-internationalists, regard the international system as a zero-sum game and recommend an activist foreign policy for the United States. They perceive strategic U.S. interests throughout the world and believe that even peripheral areas in the Third World affect the global balance of power. The other school,

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[29]Stephen D. Prowse, "The Ikle-Wohlstetter Report: What the Report Says," The National Interest, (Summer, 1988), p. 12.

[30]Komer, "U.S. Defense Strategy," p. 22.

[31]Ashley J. Tellis, "The Soviet Navy, Central America and the Atlantic Alliance," Naval Forces, Vol. VII, No. IV (1986), p. 54.

[32]Tellis, "The Soviet Navy, Central America and the Atlantic Alliance," Naval Forces, p. 54.

the Neo-realists, do not necessarily see the international system as zero-sum, although they do regard security as the most important objective of state behavior. In contrast to the Neo-internationalists, the Neo-realists do not accord much importance to the Third World, concluding that since few Third World areas directly affect the balance between great powers, involvement should be eschewed.[33]

Desch identifies flaws in both of these arguments. He asserts that the Neo-internationalists are overly expansive and make no distinction between vital and peripheral areas. On the other hand, while the Neo-realists may be more objective, their argument draws too sharp a distinction by neglecting the importance of certain peripheral areas. Instead, Desch suggests that the United States, as a great power,[34] must recognize the importance of areas of both intrinsic and extrinsic value[35] in developing a grand strategy, but avoid the allocation of limited national defense resources beyond these areas.

Because of their significant internal resources, Desch recognizes three geographic regions of intrinsic importance to the United States: Western

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[33]Desch, "The Keys that Lock up the World," pp. 90-92.

[34]A great power can pursue security and other ends by manipulating the world balance of power, while an ordinary power can only use its limited resources to defend itself or pursue other ends. Desch, "The Keys that Lock up the World," p. 97.

[35]Four strategic interests of a great power: 1) Defense of the homeland 2) Protection of interests outside the homeland in areas of "intrinsic" value because of their "large, cohesive, and well-educated populations, strong economies, healthy industrial bases, essential natural resources, high level of technological sophistication, or large standing military forces," which can therefore directly contribute to the strength of the homeland. Areas with intrinsic value are the most significant elements in the global balance of power. 3) Protection of interests in areas outside the homeland of little intrinsic value, but which have "extrinsic" value because they contribute to the defense of the homeland or other areas of intrinsic value with regard to their geographic proximity, current level of military technology, and strategy. 4) Residual Category: strategic security investment should be ignored since only very marginal and diminishing returns can be expected in these areas. Desch,"The Keys that Lock up the World,"pp.97-98 and p. 107.

Europe, the Persian Gulf, and Northeast Asia. According to Desch, few areas in the Third World, except for the Persian Gulf, have much intrinsic value. The Persian Gulf has intrinsic value because Western Europe and Japan depend on its oil. However, oil is the exception because "no other resource is as critical or amenable to cartel control."[36] On the other hand, Desch cites the Caribbean and Central America, the Indian Ocean littoral, and a base in the Western Pacific as regions of extrinsic value. Finally, he considers places such as southern Africa as regions to be ignored.[37]

By segregating existing perceptions of areas of vital interest to the United States into two camps, Desch has greatly simplified the actual diversity of opinion in the debate.[38] Nevertheless, the intrinsic-extrinsic concepts Desch has outlined are valuable tools for organizing the regional security priorities of the United States. Most analysts would generally agree with Desch's assessment of both the regions of primary, or intrinsic, value and those of extrinsic value to U.S. strategic security. However, this author contends that U.S. regional priorities are shifting with current global political, military and economic events, and that certain other peripheral regions, especially South America, will take on increasingly greater strategic value than they have commanded heretofore. The reason for this can be summed as: a) the threat presented by the former Soviet Union has diminished; b) the number of other potential threat axes is increasing significantly with the global proliferation of arms, insurgencies, and terrorism; and c) developing

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[36]Desch, "The Keys that Lock up the World," p. 92.

[37]Desch, "The Keys that Lock up the World," pp. 111-120.

[38] A broader-based summary of alternative perspectives on U.S. strategic interests is provided by Stephen M. Walt, "The Case for Finite Containment: Analyzing U.S. Grand Strategy," International Security, Vol. 14, No. 1, (Summer 1989).

and other developed nations, alike, are becoming increasingly competitive with the United States in the global marketplace, a fact which will have long-range implications for U.S. security.

2. Latin America: Threat and Opportunity

Changes in the geopolitical significance of regions, such as in patterns of trade and regional balances of power, are just two of the reasons why it is important that the United States constantly reassess its security goals and requirements within each hemisphere. Notwithstanding the former Soviet Union, the foreign policy of the United States has generally focused greatest attention on those regions of the world that may be considered "hotspots." Very infrequently has the U.S. "security optic" gazed within its own hemisphere.

Using the U.S. Foreign Assistance Program as an example, over the last thirty years, Southeast Asia and the Middle East have consistently absorbed the majority of U.S. military and economic assistance, while Latin America and Africa have vied for only a nominal percentage of the total yearly U.S. security assistance budget.[39] At the beginning of this decade, roughly 60 percent, or $8.1 billion, was military and military-related assistance. "Of the overall amount, 72 percent of economic aid and 92 percent of military assistance..." was reserved for a handful of countries "...who benefit from an entrenched system of political logrolling on Capitol Hill and preferential treatment by the U.S. foreign policy establishment."[40] Earmarked by

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[39]Paul L. Ferrari, Jeffrey W. Knopf, and Raul L. Madrid, U.S. Arms Exports: Policies and Contractors, (Washington, DC: Investor Responsibility Research Center, Inc. (IRRC), 1987), p. 4.

[40]John M. Goshko, "Vying for Slivers of the Foreign Aid Pie," The Washington Post National Weekly Edition," (11-17 June, 1990), p. 6.

Congress, two-thirds of all U.S. aid was received by Israel, Egypt, Pakistan, Turkey, and the Philippines.[41] On the other hand, military assistance to Latin America has generally averaged about two percent of the total U.S. military assistance pie - a level deemed appropriate by American policy-makers to assist the defense needs of specific Latin nations for the symbolic support of anti-communist regimes. Since 1981, the level of U.S. military assistance to Latin American has increased, although most of this aid has gone to El Salvador - a response to insurgency in Central America.[42] In 1991, a $375 million aid request for El Salvador left only a small trickle of money for the rest of the Western Hemisphere.[43]

The relatively scant attention the United States has paid Latin America in the past may be due to primarily two reasons: First, the Western Hemisphere has traditionally been considered the backyard of the United States; and second, Latin America has never been perceived as a particularly conflict-oriented region, either from external aggression or internal subversion. Today, however, Latin America is decreasingly isolated from world events and the relative importance of Latin America to U.S. security interests has increased dramatically.

As U.S. security requirements have increased in Latin America, U.S. influence in this hemisphere has decreased. Indeed, as Robert L. Scheina has noted, "U.S. naval dominance in Latin America began to diminish in the late

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[41]John M. Goshko, "A Brave New World And a Tired Old System For Funding It," The Washington Post National Weekly Edition, (11-17 June, 1990), p. 7.

[42]Richard F. Grimmett, "An Overview of United States Military Assistance Programs," CRS Report for Congress (88-282 F), (Washington, D.C.: The Library of Congress, 29 March 1988), p. 8.

[43]Goshko, "Vying for Slivers of the Foreign Aid Pie," The Washington Post National Weekly Edition, (11-17 June, 1990), p. 6.

1960s, a trend that accelerated in the next decade as North American political influence in the area waned."[44] Perhaps reaching its nadir in the post-Falklands era, the fall of U.S. influence in Latin America is largely the result of Latin American nations asserting their independent foreign policies, but it also stems from U.S. neglect and poorly-handled relations in the region.[45] The U.S. invasion of Panama in 1989, for example, was perceived by many Latin Americans as typical of U.S. heavy-handedness in its relations with Latin America. The fact that Manuel Noriega's ouster was pleasing to many still does not obviate concerns that American gun-boat diplomacy may be used again. However, if the Cold War is truly at end, then perhaps the United States, save some new calamity, should become increasingly cognizant and more capable of focusing time and money on resolving its problems within the Western Hemisphere.

a. Threats To U.S. Security Interests in Latin America

U.S. security interests in Latin America are multiple. Most recently, the issues of greatest concern have included democracy, debt, drugs, insurgency, terrorism, migration, and the environment. In the past, the United States has needed only a minimum military presence to protect U.S. interests on its southern flank. The collective security system established under the Rio Treaty and the Organization of American States Charter provided an additional insurance policy to unite the nations of the Western Hemisphere against outside powers and against indigenous Latin American revolutionary movements. However, a new approach may now be necessary.

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[44]Robert L. Scheina, Latin America: A Naval History 1810-1987 , (Annapolis, MD: Naval Institute Press, 1987), p. 171.

[45]The decline of U.S. influence in Latin America is specifically discussed in the next chapter.

Indeed, cross-national problems, such as those listed above, require cooperative international effort if they are to be effectively resolved. The procedures for inter-American security cooperation have been applied inconsistently. The Inter-American Working Group for the World Peace Foundation points out that the OAS was virtually irrelevant in the crisis that gripped Central America in the 1980s. Furthermore, they also claim that collective security, through the Rio Treaty, has been vitiated by U.S. intervention in this Hemisphere.[46] Vitiation may be too strong a concept since the Rio Pact is neither extinct nor incapacitated. A clear and present danger to the Hemisphere would certainly evoke a regional response.

(1) Democracy. On the positive side, the transition to democracy for many Latin American nations is a trend that promotes greater cooperation, or at least less conflict, by virtue of the increased political homogeneity of the region. Paraphrasing an old cliche, "Democratic governments do not fight other democratic governments." However, this point manifests a disturbing paradox. While there is an enhanced readiness for collective action in Latin America, today, especially to combat the increasing and more complex threats to Hemispheric security, the atrophy of existing collective procedures makes implementation of cooperative action more difficult.[47]

The most overt threat to U.S. security in the Western Hemisphere had previously been the presence of the former Soviet Union. Within ten months of Castro's revolution, in 1958, a Soviet-Cuban rapprochement heralded the beginning of a new era. Although the Sino-

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[46]Statement of an Inter-American Working Group, "Collective Security in the Americas: New Directions," A World Peace Foundation Project, (June, 1988), pp. 1-2.

[47]Pointed out by the Inter-American Working Group in "Collective Security in the Americas: New Directions," p. 1.

Soviet split of the late 1960s broke the myth of a monolithic communist state, containment of communism remained at the heart of U.S. foreign policy. Certainly, as a result of the former Soviet Union's "success" in Cuba, Soviet overtures in Latin America continued to be regarded with extreme concern by the United States. Instability in Latin America was often attributed to the former Soviet Union, either through the direct funding of insurgent groups or through the use of proxies. This perception is not without merit, even though poverty and other problems may more often be the actual root of instability.[48] It has been documented, as evidenced in Grenada, that revolution and subversion were spread from Cuba into both Central America and the Caribbean, thereby helping to destabilize the region by increasing conflict within and between neighboring countries.[49] The Soviet Union helped bankroll the Sandinistas to power in Nicaragua, who then helped guerrillas in a civil war against the right-wing government in El Salvador.[50] As late as August 1988, Soviet military aid to Nicaragua was more than twice the amount of aid provided by the United States to all of Central America. By October 1988, the total value of Soviet-bloc war material shipped to Nicaragua had reached $2.7 billion.[51]

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[48]An insightful discussion on instability and security in Latin America, especially regarding the perceptions of U.S. policy-makers and the process by which a response to a perceived threat is derived, is provided by Lars Schoultz in National Security and United States Policy Toward Latin America, (Princeton, N.J.: Princeton University Press, 1987).

[49]A compilation of confiscated documents and analysis on the events that lead to the Cuban/Soviet backed coup in Grenada, resulting in the subsequent invasion by U.S. forces in 1983, is provided by Jiri Valenta and Herbert J. Ellison, eds., Grenada and Soviet/Cuban Policy: Internal Crisis and U.S./OECS Intervention, (Boulder, CO: Westview Press, 1986).

[50]See Michael Radu, "Eastern Europe and Latin America," in The USSR and Latin America: A Developing Relationship, Eusebio Mujal-Leon, ed., (Boston, MA: Unwin Hyman, Inc., 1989), for an interesting analysis of the use of its Eastern Bloc satellites as proxies to help pay for arms and aid to Nicaragua without direct Soviet involvement.

[51]Report of the Secretary of Defense, Frank C. Carlucci, to the Congress on the FY 1990/FY

The former Soviet Union had also had a presence in Peru, operating a military mission that had trained and assisted the Peruvian military since 1969. Almost one-half of the equipment operated by the Peruvian Army and Air Force had been received from the former Soviet Union.[52] This is a quite considerable sum, considering that between 1976 and 1980, over a billion dollars was spent on Soviet offensive weapons alone.[53] The former Soviet Union tried to expand its influence in Latin America through both military aid and presence. Indeed, by the end of 1988 there were more Soviet military advisors in Latin America and Africa than the United States had throughout the world.[54]

Today, Soviet aid to Latin America is gone. With the demise of the Soviet Union, countries such as Cuba have a limited capability to back further revolution in Latin America.[55] The Peruvians still use Soviet-made equipment, but the Peruvians had only sought to diversify their source of military supplies away from the United States. They were not influenced by the Soviets to make political change and had no wish to become reliant upon them as suppliers.[56]

So, what does all this suggest? In the near term, the United

1991 Biennial Budget and FY 1990-94 Defense Programs, January 17, 1989, (Washington, DC: U.S. Government Printing Office, 1989), p. 26.

[52]Report of the Delegation to Latin America of the Committee on Armed Services, House of Representatives: 100th Congress, 1st Session, April 1987, (Washington, DC: U.S. Government Printing Office, 1987), p. 8.

[53]Government document, "The U.S. Position on Peru," in Inter-American Economic Affairs, Vol. 39, No. 2, (Autumn, 1985), Washington, DC: Inter-American Affairs Press, 1985, p. 86.

[54]Carlucci, FY 1990, p. 30.

[55]See Carmelo Mesa-Lago and Fernando Gil, "Soviet Economic Relations with Cuba," in The USSR and Latin America: A Developing Relationship, Eusebio Mujal-Leon, ed., (Boston, MA: Unwin Hyman, Inc., 1989), pp. 183-222.

[56]Erik N. Anderson, "Arms and Influence: The Soviet Union in Peru," paper presented at the Naval Postgraduate School, Monterey, CA., May, 1989.

States will expend less energy worrying about foreign subversive involvement in Latin America. Based on the collapse of the Warsaw Pact and the Soviet Union, East European presence in Latin America will more than likely be an effort to renew foreign trade agreements initiated by the Soviet Union during the 1980s, including a Soviet-Argentinean fishing agreement in 1986, the signing of a Soviet-Peruvian commercial fishing and debt reduction agreement, and the signing of a cultural and economic cooperation agreement with Brazil and Uruguay in 1987.

TABLE 1
SOVIET TRADE WITH LATIN AMERICA

Country	Imports from USSR (in millions of rubles)			Exports to USSR (in millions of rubles)		
	1979	1985	1986	1979	1985	1986
Argentina	24.8	63.0	53.3	288.7	1229.9	192.4
Brazil	19.9	70.2	30.3	160.0	380.0	236.5
Colombia	9.0	5.2	4.9	3.0	21.2	0.0
Cuba	2113.2	3877.4	3802.3	2136.0	2140.1	3800.2
Mexico	0.7	4.2	4.3	4.1	16.1	7.6
Nicaragua	*	212.9	276.4	*	0.2	7.7
Panama	10.3	7.1	10.5	0.2	**	**
Peru	2.8	11.3	9.2	9.9	108.5	75.2
Uruguay	1.6	33.5	4.3	11.7	32.4	20.6

Vneshniaia Torgovlia, 3(1979 supplement), and 3(1987 supplement)
* No data available
** No measurable trade
SOURCE: Robert K. Evanson, "Soviet Trade Relations with Latin America," in The USSR and Latin America: A Developing Relationship, Eusebio Mujal-Leon, ed., (Boston, MA: Unwin Hyman, Inc., p. 234.

In the long term, it is conceivable that one of republics of the former Soviet Union, most probably Russia, could again pose a threat to the United States by its direct and/or indirect actions in Latin America. However, the extent of such involvement in the Third World, and especially

in Latin America, will be difficult to determine until after the radical changes affecting the former Soviet empire have been stabilized and the subsequent political-military boundaries fully define a new balance of power. In the interim, other countries, such as China, may pose a threat to the region.

(2) Debt. Other problems in the region pose mounting security threats to the United States. One of them is the quagmire of international debt. It might be said that if poverty creates instability, debt-aggravated economic stagnation helps to fuel the fire. Add inflation to this problem and a recipe for disaster is created. Without pursuing the question of the origin of the debt crisis, for which no single entity or person is to blame - but also from which few of the "players" can be completely absolved - the more important question inquires into its resolution. It will require financial adjustments that redirect and improve the flow of capital back into debtor nations and/or the economic reconstruction of indebted nations. The magnitude of such requirements dictate that the problems of those nations most heavily indebted might only be resolved through the implementation of plans that have international and national backing and compliance by both governmental and non-governmental entities. The most prominent program instituted to date, the Baker Plan, has been castigated by many as a treadmill on which debtor nations remain on hold, a precarious balance from which their situation does not deteriorate, but neither does it improve.[57]

Indeed, the United Nations Conference on Trade and

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[57]See Rudiger Dornbusch, "The Latin American Debt Problem: Anatomy and Solutions," in Debt and Democracy in Latin America, Barbara Stallings and Robert Kaufman, eds., (Boulder, CO: Westview Press, 1989), pp. 7-22. This essay, along with the other essays in this book, provides a concise overview of many of the political-economic dilemmas that relate to debt in Latin America.

Development (UNCTAD) stated that although the Baker Plan helped to avoid an international banking crisis and increased their provisions against losses from problem-country loans, in other respects the record has been more of a failure.

TABLE 2
DEBT BURDEN OF HIGHLY INDEBTED COUNTRIES

Country	Debt ($ billion)					
	Total	All Banks	U.S Banks	9 U.S Largest Banks	Debt per Capita ($)	PerCapita Consump. Growth: 1980-87 (annual average)
Argentina	49.4	42.4	8.5	5.9	1592	-1.2
Bolivia	4.6	1.2	0.1	0.04	407	-5.2
Brazil	114.5	84.2	21.9	15.1	70	1.1
Chile	20.5	17.1	6.4	4.2	1666	-2.2
Colombia	15.1	7.5	2.0	1.5	517	0.2
Costa Rica	4.5	2.3	0.4	0.2	354	-1.4
Ecuador	9.0	6.3	n.a.	n.a.	892	-2.2
Iv. Coast	9.1	5.5	0.4	0.3	892	-4.3
Jamaica	3.8	6.6	0.2	0.2	1583	-1.4
Mexico	105.0	90.5	24.0	13.8	1313	-2.7
Morocco	27.0	5.5	0.8	0.7	1205	0.8
Nigeria	27.0	14.9	0.9	0.7	274	-6.5
Peru	16.7	8.9	1.2	0.7	827	-0.2
Philippine	29.0	17.6	5.0	3.6	527	-1.0
Uruguay	3.8	3.0	0.9	0.7	1267	-2.4
Venezuela	33.9	33.7	16.4	6.2	1904	-4.6
Yugoslavia	21.8	15.2	2.0	1.3	936	-0.5

World Bank, World Debt Tables 1987-88; Salomon Brothers, Inc.; and Federal Financial Institutions Examination Council, Country Exposure Lending Survey (June 1987).

SOURCE: Rudiger Dornbusch, "The Latin American Debt Problem: Anatomy and Solutions," in Debt and Democracy in Latin America, Barbara Stallings and Robert Kaufman, eds., (Boulder, CO: Westview Press, Inc., 1989), p. 12.

Developing countries' debt burden has remained high and growth remains sluggish. In fact, more countries are now in arrears than when the debt crisis

broke in 1982, and per capita real income is well below 1980 levels.[58] The onus for resolution to the problems of indebted countries should not lie only on the backs of foreign investors and creditors, but out of three possible solutions - a continuation of the present strategy, a big increase in new lending, and debt relief - UNCTAD concludes that debt relief is the only way to revive growth and reduce debt.[59]

Critics of such a policy may point to Chile as a model example of a country pulling itself up by its own bootstraps, with little external help, and suggest that others, such as Peru, should do the same. To make such a comparison, however, is faulty. "One is tempted to draw the conclusion that Latin America's heavily-indebted countries can revive their economies even as they service their debts if, like Chile, they adopt "correct" market-oriented policies. The fact is, however, that the course pursued by Chile is not an option for the region's other major debtors - Argentina, Brazil, Mexico, Venezuela or Peru."[60] The reason, of course, is that civilian government can only turn up austerity measures so far before democratic politics requires compromise. On the other hand, Chile's authoritarian regime could impose economic policy by fiat, a point which even Hernan Buichi, Chile's former Finance Minister, has conceded.[61]

Without satisfactory resolution and burden-sharing, debt servicing becomes a negative-sum game which can foster violent

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[58]"A debtor's dream," The Economist, (10 September, 1988), p. 81.

[59]"A debtor's dream," The Economist, (10 September 1988), p. 81.

[60]Peter Hakim and Richard Feinberg, "Latin American debt: The lessons from Chile and Peru," The Financial Times, (30 November, 1988), p. 21.

[61]Roger Cohen, "Chile's Finance Chief Teaches a Dictatorship about Free Markets," The Wall Street Journal, (28 September, 1988), p. A-1.

repercussions. Indeed, the debt-related problem of hyper inflation undercuts living standards and can disengage an economy from a productive cycle. As Eliana A. Cardoso says, "High inflation in Latin America poses a threat to the infant democracies there. It erodes the purchasing power of wages, creates an intense feeling of insecurity, and undermines popular support for constitutional governments."[62] Hyper-inflation also has the social impact of further widening the gap between rich and poor since its effect is regressive - low and fixed income people are affected the worst. Thus, in nations which have great inequity in their distribution of income, such as in Brazil, hyper-inflation compounds this problem and makes stabilization programs extremely unpopular and politically difficult to enforce.

Ultimately, hyper-inflation is a curse to long-term growth since it tends to breed "corto-plazismo," or short-term planning. Capital flight increases as local and international investors grow more skeptical, while speculation and the black market thrive. Without capital investment, an essential building block of all economies, future potential for sustained growth is undermined. So, even while an economy may roar ahead in the short-term, fueled by inflation, prospects for the future dim once the presses have stopped but the economic engines only cough.

There can be no denial that sound economic policy is a requirement. Peru's economic undoing, for example, was not its suspension of debt payments, but "the government's failure to put the resources thus obtained to productive use."[63] But since the burden of debt-servicing can

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[62]Eliana A. Cardoso, "Hyperinflation in Latin America," Challenge, (January-February 1989), p. 11.

[63]Hakim and Feinberg, "Latin American debt," The Financial Times, (30 November, 1988), p. 21.

weigh down a government's ability to jump start its sputtering economy, each problem (debt and inflation) can lend to the other in an ever-deepening spiral. Henry Kaufman observed that "the restrictiveness of debt cannot be denied. If the debt blockage is not eased, economic growth globally will continue at only a slow pace, risking a major worldwide business setback."[64] Obviously, the Baker Plan was inspired by this recognition, but it may not be enough to release debtor nations from this cycle. Aside from the implications of recession, which are onerous enough, it is critical for U.S. policy-makers to realize that continued efforts to avert financial chaos are especially important in Latin America. Debt relief may help stem other threats to U.S. security from the region - including political instability, migration, terrorism, and continued growth in profitable cash crops (such as the coca plant) - which are often intensified by economic woes.

(3) Terrorism. As of the beginning of the 1990s there were 27 active insurgent groups in nine Latin American countries.[65] The motivation of these groups varies from group to group, country to country, although dissatisfaction with the established elite and/or political-economic disaffection is often the root cause. Whether one calls them terrorists, revolutionaries or freedom fighters depends on how one sides with their

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[64]Henry Kaufmann, "The Risks in the World Economic Order," public lecture, New York University, February 24, 1987, as cited by Rudiger Dornbush, "The Latin American Debt Problem: Anatomy and Solutions," in Debt and Democracy in Latin America, p. 12.

[65]United States Military Posture FY 1989, The Joint Chiefs of Staff, p. 28.

causes, but the end result is generally political violence - ranging in intensity from intermittent fracas to civil war.

A cursory glance at insurgency in Latin America over the last four decades, alone, provides a perspective on the extent to which civil strife, political instability, and military power-brokering has been endemic to the region. In the late 1950s, the Batista regime was overthrown by Fidel Castro in the Cuban Revolution. Castro's coup exemplified the capability of a well-coordinated and motivated insurgency to attack established forces through guerrilla tactics and assume complete control of government. While no other insurgency in Latin America has since duplicated this feat, save the Sandinistas in Nicaragua, the potential for success was established.

Despite the ill-fated attempt by Che Guevarra to export revolution to Bolivia, the 1960s and the 1970s witnessed an intense period of political violence in the Southern Cone countries of South America. The civil disruption caused by independent guerrilla action in urban areas of Argentina, Bolivia, Brazil, and Uruguay were compelling enough to cause the calling of states of siege and an all-out crackdown by government forces. Perhaps the best documented event of this era was the "dirty war" in Argentina, in which the military ruthlessly stamped out civil disobedience and ruled by junta in the name of state security. The ensuing strife between the different factions in Argentine society shook the country to its core and resulted in the deaths and "disappearances" of thousands of citizens. The Montoneros and the People's Revolutionary Army, the dominant guerrilla groups in Argentina, were decimated by the mid-1970s, but, by this time, many citizens probably feared the military and right-wing death squads more.

In Uruguay, the Tupamaros were liquidated by the Uruguayan army, which seized power in 1972, smashing the political parties and trade unions along with the guerrillas. In Brazil and Bolivia, guerrilla movements were less powerful than in Argentina and Uruguay, but they resulted in political agitation and violence, nevertheless. In Chile, a unique situation arose wherein a popular uprising occurred in defense of the elected regime of President Salvador Allende. It has been estimated that 30,000 people lost their lives resisting the overthrow of this regime by the military in 1973.[66]

In the 1980s, terrorism was much less evident in the Southern Cone nations than it had been previously, a tribute to the eradication process implemented by the state security and military within each of these nations. On the other hand, guerrilla action was rampant in Central America and in the northern part of South America. Nicaragua, El Salvador, Colombia, and Peru have stood out most prominently.[67] It is still too early to tell if the fledgling democracy in Nicaragua will take strong enough root to discourage further Contra resistance. A tenuous cease fire is in effect and a process of repatriating exiled forces is being attempted. In El Salvador, skirmishes between government forces and rebels continue a decade of violence in this small country. Leftist guerrillas operate out of the highlands, but have made concerted efforts to push into the capital of San Salvador. The latest large offensive occurred in November, 1989. Although a new offensive has not been signaled in 1990, rebel attacks against specific targets, such as power

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[66]Richard E. Rubenstein, Alchemists of Revolution: Terrorism in the Modern World, (New York, N.Y.: Basic Books, Inc., 1987), p. 72.

[67]A solid recantation of the people and events that played in the Nicaraguan Revolution is provided by Shirley Christian, Nicaragua: Revolution in the Family, (New York, N.Y.: Vintage Books, 1986).

stations, have continued. In a recent attack on San Salvador, five military troops were killed in the ensuing firefight. The retaliation was in response to what a rebel message protested was "the total immunity of the armed forces who violate human rights."[68] Much like the "dirty war" in Argentina, right-wing death squads in El Salvador have made "brutality" a term which may apply to either side. Indeed, El Salvador President Alfredo Cristiani has already admitted that government forces were responsible for the deaths of six Jesuit priests at the Central American University in November, 1989.

In Peru, the Shining Path, or Sendero Luminoso, is a movement spawned by Abimael Guzman, formerly a philosophy professor at the University of Ayacucho. After Marx, Lenin, and Mao, Guzman is known as the "fourth sword of world communism" by his followers. However, since Guzman denounced the former Soviet Union and China as imperialist states, calling Gorbachev and Deng infidels to the cause of communism, Guzman effectively ostracized his movement from outside help. Despite the lack of foreign funding, Sendero Luminoso has still managed to wage an effective guerrilla war against a country that has been ill-equipped, either economically or militarily, to counter the movement. Instead, financing is provided by extorting drug traffickers that buy local coca leaf and by confiscating private property.[69] With between 5,000 to 7,000 combatants, mostly in their teens and twenties, a decade of fighting government forces has claimed the lives of over 22,000 Peruvians.[70]

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[68] Associated Press, "Salvadoran rebels attack capital; 5 die," The Virginian-Pilot, (3 May, 1990), p. A-13.

[69] Editorial, "Fighting 'Shining Path,'" The Virginian-Pilot, (26 April, 1990), p. A-14.

[70] Tina Rosenberg, "To the Victor Will Go the Spoiled in Peru," The Washington Post National Weekly Edition, (30 April-6 May, 1990), p. 23.

Although Guzman was recently caught by the authorities, Sendero Luminoso is still actively engaged in terrorism. Working from their base in Ayacucho, Sendero Luminoso has expanded their forays from the countryside into Lima, although their stronghold remains the high country of Peru. Using sabotage and assassination to terrorize the masses, targets seem indiscriminate, except in one category - targets represent the modern establishment. When Sendero enters a village, the guerrillas will often force the locals to commit illegal acts - such as theft. "The strategy seems to be to provoke as much repression as possible from the police and army, which in turn wins over more Senderistas."[71] It is Sendero Luminoso's goal, in a post-revolutionary state, to turn power over to the lower classes of Peru and that a single party will retain absolute control. Their ideal state would be similar to that of the counter-revolutionary period of Maoist China.

This short overview of insurgency in Latin America has neglected to mention the names and efforts of scores of other politically-motivated groups, indigenous to the region, that have used terrorism as a means to gain recognition. The point of this review of guerrilla action, however, is to note that terrorism is a symptom of political instability, not the cause. "Terrorism is the product of social dislocation."[72] Terrorist organizations are generally the brainchild of disaffected intelligentsia. Rubenstein notes that the distinction between democracy and totalitarianism has little to do with the frequency and intensity of terrorist acts as compared to the traditions and social conditions of the native intelligentsia. He states:

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[71]Rosenberg, "To the Victor Will Go the Spoiled in Peru," The Washington Post National Weekly Edition, (30 April-6 May, 1990) p. 23.

[72]Rubenstein, Alchemists of Revolution, p. 108.

> Whether young intellectuals will be driven by hope and desperation to undertake independent military adventures depends upon numerous factors, the most important of which are the extent to which the intelligentsia is integrated into the society, the availability of social-management careers, apparent opportunities for meaningful political change, and the presence or absence of local constituencies for terrorism both inside the intelligentsia and out.[73]

So, the less politically, socially, or economically-disaffected the intelligentsia, and/or those peoples they attempt to recruit, the less likely that insurgency will either arise or gain a foothold in that country. Furthermore, the more stable a country, the less likely that vigilante groups, or right-wing death squads, will feel the need to represent elements of the ruling elite, military, or an authoritarian regime.

Colombia is one Latin American example of a nation close to chaos. Rebel elements in Colombia have gained such a stronghold that the normal processes of law and government have been subverted. In Colombia, however, the problem of insurgency has been compounded by another element - narcotics. In a liaison of convenience, political insurgents and drug traffickers have been known to work together to the benefit of their respective causes. While often only temporary, this symbiotic relationship has had violent repercussions. Judges, journalists, and presidential candidates have all been targets for kidnappings and assassination. Since the problem of insurgency in neighboring countries has already been addressed as a security

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[73]Rubenstein, Alchemists of Revolution, p. 85.

threat, rather than focus on a Colombian guerrilla group, such as the M-19, this is a good juncture to focus on the drugs, as a security threat, instead.

(4) Drugs. Indeed, while political insurgency may symbolize the fracture of a society, in one sense, drug abuse symbolizes another form of societal decay. There is considerable consternation in the United States, therefore, over the impact of an expanded drug trade on the fabric of societies in the Western Hemisphere.[74] A report by the Regional Conflict Working Group states, "trafficking imperils the very survival of democracy in friendly nations, such as Colombia and Panama, heavily involved in production and smuggling of illegal drugs or in the related movements of money."[75] Ergo, if trafficking threatens the national security of Latin American countries, then it also threatens the national security of the United States.

Latin America is the source of all cocaine, four-fifths of all marijuana, and one-third of all heroin consumed in the United States.[76] Of these three, and of all other illegal drugs that are flooding the world market, today, cocaine is spreading the fastest.[77] A May, 1990 report released by the U.S. Senate Judiciary Committee estimates that about 2.2 million Americans,

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[74]Although it is relevant to note that the rising consumption of illicit drugs in the United States may be as much a problem of demand as one of supply, demand is a domestic problem that will not be discussed since it is not within the purview of this paper. Instead, the emphasis will be on supply.

[75]Report by the Regional Conflict Working Group submitted to the Commission on Integrated Long-Term Strategy, "Supporting U.S. Strategy for Third World Conflict," (June, 1988), p. 15.

[76]Statistics provided by the National Narcotics Intelligence Consumer's Committee, as compiled by Eric Paulsen in "Latin American Narcotics Trafficking," a research paper presented to students in the National Security Affairs Department at the Naval Postgraduate School, Monterey, Spring Quarter, 1989.

[77]Peter T. White, "An Ancient Indian Herb Turns Deadly: Coca," National Geographic, Vol. 175, No. 1, (January, 1989), p. 35.

or approximately one percent of U.S. citizens, are "hard core" cocaine addicts.[78]

Although Peru and Bolivia are the major source countries[79] of coca (60 percent and 22 percent, respectively), the leaf from whence cocaine is derived, it is in Colombia that the Medellin and Cali cartels reside. These cartels have built the largest narcotics trafficking network in the Western Hemisphere, and have helped to make Colombia the major producer and conduit for U.S.-bound cocaine. Indeed, cocaine has become a principal source of foreign exchange for Colombia.[80]

Congressional testimony cites the worth of the illegal drug trade as high as $500 billion.[81] Even if this estimate is grossly high, it indicates the magnitude of the profits that can be garnered in narcotics. Colombia, Peru, and Bolivia have been variously described as becoming "narco-dependent." Drugs have become such a key facet of their economies that reversal of this trend may be very difficult. Since peasant farmers in Latin America generally eke out a meager existence, for example, those who grow and harvest coca are not easily persuaded to institute crop substitution programs. No other cash crop is yet as lucrative as the coca leaf. Middlemen who help haul the leaf,

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[78]Hard-core is defined as someone who uses cocaine once a week or more. Knight-Ridder News Service, "1% of U.S. addicted to cocaine, report estimates," The Virginian-Pilot, (11 May, 1990), p. A-6.

[79]Source countries are those that are the major producers of illegal narcotics, as opposed to those countries which serve as bases for the transhipment of narcotics and the laundering of illicit revenues.

[80]White, "An Ancient Indian Herb Turns Deadly: Coca," National Geographic, (January, 1989), p. 25.

[81]U.S. Laws, Statutes, etc., "Anti-Drug Abuse Act of 1988," *United States Statutes at Large*, Public Law 100-690, 100th Congress, 2nd Sess. (Washington, D.C.: U.S. Government Printing Office, 1988), sec. 10-4102. As cited by Charley L. Diaz, "DoD Plays in the Drug War," United States Naval Institute Proceedings: Naval Review, (May, 1990), p. 76.

process the cocaine, and transport the product stand to gain substantially more. Participation in trafficking can enrich them far greater and faster than they could ever hope by hawking wares on city streets. However, those people that really cash in are those individuals who run the networks, themselves, men like Pablo Escobar Gaviria, the Ochoa brothers, and Carlos Lehder Rivas.

The wealth amassed by the criminal cartels enables them to afford to buy arms, munitions, and even political allies. Indeed, these cartels "constitute an international underworld so extensive, wealthy and powerful that it can literally buy governments and destabilize entire societies."[82] The Medellin cartel, for example, has reportedly placed a bounty of the equivalent to $4,000 for the murder of each regular policeman.[83] In another example, two Colombians were taken into custody after trying to buy Stinger missiles for use against aircraft carrying Colombian officials. An FBI agent testified that the men, who both claim links to the Medellin cartel, had already agreed upon a $1 million down payment from cocaine profits in exchange for 120 Stingers, 50 automatic rifles, and a plane to transport the weapons to Colombia.[84] As Colombian President Virgilio Barco stated, in a speech at the national police academy, drug traffickers are trying to "wipe out an entire institutional government of democratic tradition, of civil and moral values."[85]

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[82]Regional Conflict Working Group, "Supporting U.S. Strategy for Third World Conflict," (June, 1988), p. 64.

[83]Associated Press, "22 people reportedly injured by car-bomb blast in Colombia," The Virginian-Pilot, (18 May, 1990), p. A-12.

[84]Associated Press, "2 Colombians held in missile plot," The Virginian-Pilot, (8 May, 1990), p. A-5.

[85]Associated Press, "22 people reportedly injured by car-bomb blast in Colombia," The

In summary, the syndication of drug-running, the cooperation between narco-traffickers and guerrillas, and the use of strong arm tactics threaten the basis of civil democratic authority in the Western Hemisphere. What is happening in Colombia is not an isolated event. Certainly, the United States is not such an island that it may be considered free of risk. Powerful forces are at work. U.S. customs Service agents, for example, recently discovered an elaborate tunnel built under the Mexican border, within sight of the official U.S.-Mexican cross station, used as a conduit for the international transport of cocaine to an Arizona warehouse. The million-dollar passage is described as " 'something out of a James Bond movie,' replete with electric lighting, concrete reinforcements, and a hydraulic system that raised a game-room floor in a Mexico hide-out to provide entry to the secret crossing."[86] Customs believes that there are other such tunnels at other points along the U.S. border.

The topics of concern regarding security that have been discussed thus far in this section (namely democracy, debt, drugs, and insurgency), all have one thing in common - in Latin America they have each seen a resurgence in the 1990's. It is ironic, however, that as the flame of authoritarianism has been doused and that of democracy rekindled, that those very subversive and/or deleterious elements which were previously suppressed now threaten the continued existence of fragile new governments. The 1990's will be the decade that proves either the consolidation, or the demise, of the hard won political battles that have

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Virginian-Pilot, (18 May, 1990), p. A-12.

[86]Los Angeles Times News Service, "U.S. agents find drug-smuggling tunnel," The Virginian-Pilot and the Ledger-Star, (19 May, 1990), p. A-8.

consumed Latin American nations since the end of the age of militarism and the "twilight of the tyrants" in Latin America was prematurely forecast by John J. Johnson, Tad Szulc, and other academics in the early 1960's. The fundamental economic, political, and social problems facing these new regimes are profound and will require a much more patient and conservative approach - albeit open and democratic - than perhaps was advocated thirty years ago, during a more idealistic era, as symbolized by the U.S. Alliance for Progress.

b. Other Rising Security Concerns

There is an intrinsic inter-relationship between the dynamic factors that comprise a body politic within each nation. In Latin America, few nations - save perhaps Costa Rica - have maintained a stable, as well as progressive, socio-political system. In the past, rising pressures always seem to rupture hopes of stabilizing at a satisfactory equilibrium. Described in geopolitical terms, this cause and effect relationship ascribes to problems realized on an intra-regional basis.

(1) Geopolitics. Latin American military leaders and their civilian associates take geopolitics quite seriously, especially in the Southern Cone nations. Since South American geopolitical writings tend to stress "competition," it is not surprising that they focus on potential sources of conflict. Broken into categories, regional strife may arise from disputes over borders, territory, resources and/or inter-state migration. The politics of ideology and influences on the regional balance of power are another basis for intra-state friction. Avoiding a long discourse on the historical roots of geopolitics in Latin America and their relationship to intra-regional problems of contemporary Central and South America and in the Caribbean, suffice it

to say that in the typology of conflict in Latin America there is both an overlap between the above-mentioned categories and a "clustering" of these catalysts for conflict within each sub-region of Latin America. Throughout the region, the root cause of most conflicts has been associated with both territorial and border disputes. Territorial conflicts involve opposing claims on a geographical area. National claims also extend to territories over the sea. Closely associated with territorial conflict, border conflicts arise over disputed ground on a common border. As competition for resources, such as known and potential food, mineral, and energy sources, that are extant on land or in the sea/sea bed become increasingly more keen in the near future, so will the drive to secure territorial claims.

Conflict associated with the battle over allies attracted to differing governmental systems, or ideology, are relatively new in Latin America. Ideologically-oriented conflict has largely been confined to the Central American/Caribbean sub-region. On the other hand, contention for the controlling interest, or hegemony, in the regional and sub-regional geopolitical balance of power has long been a source of tension. More recently, a decrease in U.S. influence within the region has induced some readjustments in the local balances of power. Finally, due to problems of internal political and economic disorder, interstate conflict, and population expansion, the movement of exiles and refugees across borders may be cause for international disputes.[87]

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[87]For greater elaboration on typology and definitions see Jack Child, "Interstate Relations in Latin America: Peaceful or Conflictual?," International Journal, XLIII (Summer, 1988), pp. 379-380. Also see Wolf Grabendorff, "Interstate Conflict Behavior and Regional Potential for Conflict in Latin America," in Journal of Interamerican Studies and World Affairs, Vol. 24, No. 3, (August, 1982), p. 267.

Since the topic of "democracy" has already been discussed, and a following chapter will deal with the role of the United States in Latin America and changes in the balance of power, this narrows the focus down to problems associated with "lebensraum" - territory, resources, and migration. As potential catalysts of conflict in Latin America these problems represent a real threat to U.S. security for the following reasons: territorial war in Latin America might prompt U.S. involvement - and while the Panama and Grenada invasions were relatively simple, the proliferation of missiles and other weapons systems elsewhere in the region makes future involvement more risky; the availability and state of natural resources are both an economic and environmental concern of global proportions; and the non-controlled influx of large numbers of fleeing refugees or illegal migrants into the U.S., Mexico, or other allied nation can be deleterious to both the U.S. economy and society, or that of an ally.

(a) Territorial Disputes. While the root cause of disputes over borders in Latin America lies mainly in the poor survey techniques and incorrectly drawn maps of the first European explorers almost five hundred years ago, geopolitical boundaries remain a contentious issue, especially in South America, today. Competition for resources has only placed greater focus on territorial ownership, including attempts to extend and control greater maritime space, rights to the underlying seabed, as well as claims to the Antarctic. Of course, an interest in assuming greater regional influence and amassing greater national prestige is another factor. One must not underestimate the extent to which national passions can be aroused by the issue of territorial sovereignty in Latin American nations. Latinos have a

long corporate memory of injustices, or perceived injustices, to their respective countries, and hence rivalries can be intense and quickly rekindled.

The Bolivia-Chile-Peru dispute, for example, originated out of the War of the Pacific (1879-1883) when Chile defeated a Bolivian-Peruvian coalition for control of the Atacama Desert, a 600-mile stretch of nitrate-abundant coastline originally shared by all three countries. Chile annexed and/or occupied this region, thereby increasing its territory by a fourth and attaining a new status as a regional power. Peru suffered a fall from its previous position of prominence, and Bolivia was left landlocked. Although Peru was finally able to arrive at a settlement with Chile in 1929, which returned the Tacna province to Peru and ceded Arica province to Chile, the loss of an access to the sea has remained a constant source of frustration for Bolivia.[88] Blaming many of their economic woes on the absence of a sea port, Bolivia has made many attempts to reconcile this situation with Chile. Between 1975-1978, Bolivia negotiated for the right to a "corridor" extending to the sea, but negotiations were broken off when Bolivia was unable to draw a mutually beneficial agreement that would require the concurrence of both Chile and Peru. Another Bolivian attempt to secure an agreement on a corridor failed in 1987.[89] Continually seeking support for its claims, Bolivia has gained Argentine backing against Chile in return for Bolivian support of Argentine endeavors, such as in both the Beagle Channel and Malvinas/Falklands disputes.

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[88]Ernest Rossi and Jack C. Plano, eds., The Latin American Political Dictionary, (Santa Barbara, CA: ABC Clio, Inc., 1980), pp. 50-51.

[89]Howard T. Pittman, "Harmony or Discord: The Impact of Democratization on Geopolitics and Conflict in the Southern Cone," in Philip Kelly and Jack Child, eds., Geopolitics of the Southern Cone and Antarctica, (Boulder, CO: Lynne Rienner Publishers, Inc., 1988), p. 33.

(b) Resource Disputes. The Falklands War is the most newsworthy conflict of recent note. Geopolitically significant because of their strategic location near the "choke-point" of the South Atlantic and their location relative to Antarctica, both Argentina and Britain have had claims to these Hawaiian-sized islands that date back to the colonial era. The British have maintained actual control of the islands since they wrested them from Argentine settlers in 1833. However, it was not until Juan Peron, during a global climate of de-colonialism, chose the islands as a potential rallying point for a "greater Argentina" that Argentine interest in this territory was reactivated. To settle the dispute, a series of Anglo-Argentine talks was initiated by a United Nations resolution. Negotiations proceeded slowly towards the eventual transfer of sovereignty of the islands to Argentina.

During the 1970s, oil, fish, krill, and other resources were determined to be in abundance in or about the Falklands. Interest in the islands heightened between both claimant nations. In 1976, a shooting incident on the islands between Argentine and British citizens exacerbated tensions. In the wake of a new military junta in command of government in Argentina, tensions were again elevated by aggressive Argentine demands and yellow journalism for the return of the Falklands. The eventual Argentine invasion of the islands and the short war that ensued between Britain and Argentina, lasting from April to June of 1982, ended in a rather humiliating defeat for Argentina. Not only did the defeat represent the ultimate failure of the Argentine military government, but it left the territory of the Falklands in even firmer British control and made the islands an emotional and national point of contention for Great Britain, too.

As an essential element of the Argentine geopolitical concept of the tri-continental view, the loss of the Falklands has meant a serious weakening of this Argentine claim and a concomitant strengthening of the British claims in the Antarctic.[90] The Argentineans also suspect that the Chileans were in collusion with the British during both the Falklands War and in the Beagle Channel dispute. Far from resolved, the Argentines perhaps feel an even stronger desire to reclaim the Falklands in order to redeem their pride by restoring their "rightful" domain. Indeed, in 1984, President Alfonsin stated that the Malvinas are, were, and will be Argentine."[91] This claim has been restated by Argentina's President Carlos Menem.

Closely associated with the dispute over the Falklands, the Beagle Channel Islands have been a bone of contention between Argentina and Chile ever since the independence of these two nations from Spain because of their relationship to territorial sovereignty and maritime control of the South Atlantic. The problem originally stems from competing claims to Patagonia and a vague mountainous border. An 1881 treaty gave Patagonia to Argentina, divided Tierra del Fuego between the two countries, and created a Chilean-Argentine border based on the "highest peaks" of the southern Andes. The British were given the power of arbitration over further details

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[90]The Argentine tri-continetal view perceives their territorial domain as make up of the three Pampas - the mainland, Antarctica (White Pampas), and the South Atlantic islands running in an arc from the Tierra del Fuego archipelago to the Antarctic Peninsula (Wet Pampas) - that are all inter-connected by the South Atlantic Sea. See Jack Child, Antarctica and South American Geopolitics: Frozen Lebensraum, (New York: Praeger Publishers, 1988), pp. 77-80.

[91]Howard T. Pittman, "Harmony or Discord: The Impact of Democratization on Geopolitics and Conflict in the Southern Cone," in Philip Kelly and Jack Child, eds., Geopolitics of the Southern Cone and Antarctica, (Boulder, CO: Lynne Rienner Publishers, Inc., 1988), p. 33.

of sovereignty in 1902. Unfortunately, ownership of the Beagle Channel Islands was not clearly defined, which has resulted in a continuous rivalry over this land. The important factor, however, has not been the islands or the channel, which had been under Chilean administration for almost a century, so much as the boundary from whence the Argentine-Chilean sea was delineated. This line, when projected from its base over the sea, had implications over potential resources, Antarctic claims, and national maritime space - which is now considered sovereign territory in the Southern Cone.

To settle the dispute, an international arbitration board was convened in 1971. After six years, the board finally decided to award Chile with the Beagle Channel Islands, establishing a boundary in the channel itself. Argentina refused to accept this decision, and began staging a rapid buildup of troops and arms on its border with Chile in 1978. Only a papal proposal which sought to limit Chile's influence into the traditional Argentine jurisdiction by re-negotiating the eastern-most boundary of Chile, and thereby creating a demilitarized zone, helped to defuse the situation before it escalated into combat. It also led to the Treaty of Peace and Friendship, signed on 19 October, 1984.

The Treaty of Peace and Friendship confirmed the 1977 arbitration in favor of Chilean ownership of the Beagle Channel Islands, but it also sets strict navigational criteria, with passage rights for both Chile and Argentina; it also sets the Cape Horn meridian as the Pacific-Atlantic divisor, and it prevents the Chileans from projecting their territorial boundaries into

the Atlantic Ocean. Additionally, this treaty ties into, but does not resolve, overlapping claims by the two nations in Antarctica.[92]

The Antarctic Treaty of 1961 froze claims to Antarctica in a thirty-year moratorium. This treaty is up for review in 1991 if signatories to the treaty request that the case be reopened. However, the Southern Cone signatories may prefer that the status quo of the treaty be maintained. International interest in Antarctica has certainly increased in recent decades, and new claims have been introduced. As a result, review of the Antarctic Treaty could jeopardize those claims staked out by the original signatories.[93]

Obviously, the South Atlantic and South Pacific maritime regions are enormously important geopolitically to the Southern Cone nations. The food, mineral, and energy resources that are harbored in the seabed and in the water represent a potential source of national strength and development. Additionally, the strategic location of the southern-most region as a "choke-point" represents a focus for national security. Since interest in this area is not relegated solely to South American nations, as is manifested by other recent international claims to Antarctica, some see this as a catalyst for future conflict, too.

(2) Migration. Rather than describe further examples of geopolitical squabbles in the region, two increasingly important subjects need be discussed, if only briefly - migration and the environment. Migration is the movement of a people from one country, place, or locality to another.

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[92]Pittman, "Harmony or Discord," Kelly and Child, Geopolitics of the Southern Cone and Antarctica, p. 38.

[93]Two of the best sources of information on Antarctica, the Antarctic Treaty, and the history of claims and claimants are offered by Deborah Shapley, The Seventh Continent: Antarctica in a Resource Age, (Washington, D.C.: Resources for the Future, 1985); and by Jack Child's, Antarctica and South American Geopolitics: Frozen Lebensraum.

Poverty, unemployment, war and repression have all been catalysts for migration. Increasingly, however, rapid population growth is to blame. Notwithstanding the many positive contributions to society that immigrants have to offer, uncontrolled mass migration has its negative consequences. The mass movement of exiles, refugees, and illegal immigrants across national borders can cause increased competition for food, housing, and jobs in the host area. In turn, this can increase political tensions, increase crime, provoke civil strife and even cause outright rebellion. It is small wonder that a worldwide increase in the movement of people to more prosperous regions is arousing concern within the developed world.

Doors are beginning to close on immigrants. Applications to Europe, the United States and Canada, the traditional asylum-granting regions have risen from 25,000 in 1973 to 600,000 in 1990.[94] Since so many immigrants seek "refugee" status in order to legitimize their stay in a new country, it is becoming very difficult to discern which applicants are fleeing persecution and which are fleeing poverty. In order to safeguard the possibility of asylum for political refugees, host governments are increasing their restrictions on applicants and forcible repatriation is becoming more frequent.

In 1989, according to the U.S. Department of Commerce, 93 out of every 100 persons added to the world's population were added in developing countries.[95] The population explosion is greater in Latin America than in any other region of the world. El Salvador, for instance, is ranked

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[94]New York Times News Service, "Uprooted: Nations resist mass movement of poor refugees," The Virginian-Pilot and The Ledger-Star, (12 August, 1990), p. A-18.

[95]As cited by Barbara Vobejda, "The Overpopulation Scare Has Gotten Lost in the Crowd," The Washington Post National Weekly Edition, (9-15 July, 1990), p. 31.

among the most densely populated countries in the world. Colombia, Costa Rica, Ecuador, El Salvador, Honduras, Mexico, Paraguay, Peru, and Venezuela have all had annual growth rates exceeding 3 percent.[96] Estimates indicate that Brazil will double its population by the year 2020.[97] Considering that out of Brazil's current population of 145 million over a third are under 15, problems like unemployment, underemployment, and economic inequity must surely be exacerbated as they enter the workforce.[98] It is unfortunate that such high population density also contributes to disease, illiteracy, poverty, and frustration - conditions which promote revolutionary upheaval rather than economic growth.

It is true that large areas of Latin America remain thinly populated, but the inhospitability of desert, mountain, and jungle across much of these regions make them ill-suited for settlement. Hence, desirable areas are growing crowded. Urban centers, providing the lure of employment, sanitation, and health services are attracting growing numbers of rural migrants. In turn, the swelling numbers aggravate economic and political tensions - provoking others to emigrate. The United States acts as a magnet for many, with Latins migrating to the U.S. primarily from Mexico, Cuba, Puerto Rico, and the Caribbean. A large number of the migrants who attempt to gain illegal entry into the United States are apprehended and deported. Since 1981, for example, the United States has only allowed six of

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[96]Ernest Rossi and Jack C. Plano, The Latin American Political Dictionary, (Santa Barbara, CA.: ABC-Clio, Inc., 1980), p. 2.

[97]Paul R. Erlich and Anne H. Erlich, "Population, Plenty, and Poverty," National Geographic, Vol. 174, No. 6, (December, 1988), p. 918.

[98]Paul R. Erlich and Anne H. Erlich, "Population, Plenty, and Poverty," National Geographic, Vol. 174, No. 6, (December, 1988), p. 935.

the 22,000 Haitians that the U.S. Coast Guard has intercepted to proceed to port.[99] Still, many others are able to pass through the net.

The long U.S.-Mexican border serves as a primary conduit into the United States. In Mexico, high unemployment, combined with a growing pool of under-employed laborers, is a fact of life. It is estimated that one million new job seekers join the Mexican labor force each year.[100] Prospects for regular work are so slim that it is a driving force behind many of those Mexicans who venture to the north. Interesting to note, Mexico has also had to contend with immigrants on its southern border. Fleeing war and repression in Central America, many of these refugees have been interned in camps along Mexico's border. Whether the final destination of these immigrants is Mexico or the United States remains a good question. In any case, regardless from whence they came, the United States has become a haven for many Latin Americans.

Preliminary returns from the 1990 census reflect that the U.S. population is growing in leaps and bounds along the coasts, while the states of mid-America are on the wane. The Southwest has seen some of the greatest gains. The initial count shows that, since 1980, the population of California has increased by 23.7%, Arizona's by 33%, New Mexico's by 14.4%, Texas' by 18.2%, Colorado's by 13.2%, Utah's by 17.1% and Nevada's by 49.1%. For any number of reasons, people are moving from the middle of the U.S. toward the coasts, but it is overwhelmingly significant that approximately

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[99]Roger P. Winter, Director of the U.S. Committee for Refugees, as quoted from New York Times News Service and cited in "Uprooted: Nations resist mass movement of poor refugees," The Virginian-Pilot and The Ledger-Star, (12 August, 1990), p. A-18.

[100]Lawrence E. Harrison, "Not So Fast: A Free Trade Area with Mexico may sound great, but would it really work?," The Washington Post National Weekly Edition, (16-22 July, 1990), p. 25.

40% of the nation's growth can be attributed to immigration.[101] Latinos figure in at a high number. Percentages have yet to be published, but estimates indicate that at the current rate of immigration Hispanic-Americans will soon outnumber the population of Afro-Americans in the U.S. As a result, the United States must now contend with the political, economic, and social consequences of Latinization in the U.S.

The dramatic influx of Hispanics into the United States over the last decade represents latent political power. The nation's political agenda will be increasingly influenced by Hispanic Americans as they gain greater representation in state legislatures and in Congress. Hispanics in California and Texas already have the potential to determine the outcome of elections, due to their numbers, alone.[102] Still, voter turnout remains low. Latinos often eschew socialization outside of their own ethnic communities. Hispanic immigrants must integrate into the main-stream of U.S. society if they are to fulfill their potential as U.S. citizens. It is important for another reason, as Walter Dean Burnham, a political scientist at the University of Texas, points out "Demography is destiny."[103]

At the current rate of accession, the United States has been unable to adequately absorb all its new Latin American immigrants. While immigrants have traditionally served as a fountain of youth, helping the United States stay at the forefront of world trade, commerce, and science,

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[101] It must be noted that this data is preliminary and subject to change. Barbara Vobejda, "A Shift of Humanity That's Straight From the Heart," The Washington Post National Weekly Edition, (10-16 September, 1990), p. 12.

[102] Thomas B. Edsall, in "As California Goes, So Goes the Presidency," The Washington Post National Weekly Edition, (10-16 September, 1990), p. 13.

[103] As cited by Edsall, in "As California Goes, So Goes the Presidency," The Washington Post National Weekly Edition, (10-16 September, 1990), p. 13.

many Hispanic immigrants who arrive in the United States, today, are poor and uneducated. Unable to read or write in English, they are functionally illiterate, making their transition into U.S. society difficult. Brownsville, Texas, provides one example. With over 2000 new students added to the school roster every year, the Brownsville public school system is unable to keep up with the flood of immigrants crossing over the border from Mexico. New bilingual teachers must be hired. Social workers are needed to work with impoverished students. And as Alejandro Perez, supervisor of admissions, says "It's almost a new school coming in per year. We're building all the time."[104] As a result, costs for education, welfare, solid waste disposal, and crime prevention are all escalating. Other cities in the U.S. are witnessing similar problems as they grow increasingly urban and populous. To reduce stress on its urban centers, the United States must slow the human tide crossing its borders. Perhaps then may the U.S. more adequately assimilate new immigrants, too, thereby enabling more Hispanics the opportunity to fulfill their potential as U.S. citizens.

(3) The Environment. The population explosion in Latin America is also severely stressing the environment. It is not the density, or numbers, alone, which is the problem. More importantly, it is how people use, or interact, with their environment. Witness the United States, with only 5 percent of the world's population the United States still ranks as one of the major consumers of energy and producers of pollutants in the world. By and large, Latin American nations, are wrestling with their environment simply to provide more living room for their swelling numbers. In the case of

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[104] As cited by Vobejda, in The Washington Post National Weekly Edition, (10-16 September, 1990), p. 12.

Brazil, the long-term potential wealth of the Amazon is being exploited as a short-term safety valve for its exploding population. Since the 1970s, the once undisturbed biomass of the tropical rain forest has been plundered for timber, mining, hydro-electricity, and huge agricultural projects. Peasants escaping from overcrowded cities are torching the forest to create subsistence farms. Certainly the Amazon is large, with about 1.3 billion acres of forest, but slash and burn tactics used by the peasants to conquer the Amazon is carving up the forest at a phenomenal rate. According to Brazilian scientists, 20 million acres of virgin forest in Brazil's Amazon basin is being burned every year.[105] As the ecosystem of the Amazon is destroyed, the existence of the natural inhabitants of the forest is endangered. Considering that about 20 percent of all bird species on earth live in the Amazon forest, their extinction, alone, would be a tremendous loss.[106] Include the countless number of other species that may perish, both flora and fauna, and the untold consequences to the intricate web of life in the Amazon takes on even greater significance. In all probability, it is a loss for mankind in other ways, too. Undiscovered cures for many of man's diseases, for example, may well be lost in smoke.

In Latin America, environmental damages are by no means relegated to Brazil alone. In the Ohio-sized area of Guatemala's forested Peten region is found one of the richest repositories of plant and animal life in all of Central America. Peasants also use the land to eke out an existence by subsistence farming. It is logging, though, which provides Guatemala with one of its largest export commodities. As a result, 100,000 acres of this

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[105] As cited by Melinda Beck, "Chronicle of a Death Foretold," Newsweek, (9 January, 1989), p. 62.

[106] Betsy Carpenter, "Faces in the forest," U.S. News & World Report, (4 June, 1990), p. 64.

jungle are cut and burned yearly. At the present rate of devastation, this pristine rain forest will be defunct in 30 years.[107] Looking elsewhere, Costa Rica has razed large portions of its forests to provide pasture land for raising beef cattle. The immediate consequence of this policy has been a serious erosion of the land and a large loss of topsoil in Costa Rica. Providing a little trivia, it has been estimated that 55 square feet of grazing land is required to produce 1/4 pound of beef. In 1989, the United States imported about 138 million pounds of beef from Central America - much of it raised on land reclaimed from tropical rain forests.[108] Other examples abound, but the point is made.

Loss of wildlife and natural preserves aside, the dismantling of Latin American tropical forests has another side-effect. Each acre of burned forest releases about 50 tons of carbon into the atmosphere. Of greenhouse gasses, classified as carbon-dioxide, methane, and chlorofluorocarbons, twenty-four times more gas is released through a burning forest as through fuel combustion.[109] A new study conducted by the Washington-based World Resources Institute illustrates the consequences. The study concludes that developing countries contribute almost as much in greenhouse gasses as do the industrialized nations. Under the old index, in order, the U.S., the U.S.S.R., China, Japan, and West Germany were the top five villains in the production of greenhouse gasses, with total contributions of 22%, 18%, 11%, 4%, and 3%, respectively. Under the revised index, the United States and the

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[107] Carpenter, U.S. News & World Report, (4 June, 1990), p. 63.

[108] William F. Allman, "Rediscovering Planet Earth," U.S. News & World Report, (31 October, 1988), p. 68.

[109] Betsy Carpenter, "Greenhouse redesign," U.S. News & World Report, (18 June, 1990), p. 47.

Soviet Union still top the list with contributions of 18% and 12%, but Brazil, China, and India have now replaced China, Japan, and West Germany with contributions of 11%, 7%, and 4%, respectively.[110] Revised calculations include all three greenhouse gas emissions as opposed to the old index, which included fossil-fuel combustion and cement manufacture, only.

Evidence is building that without better conservation of resources that dire consequences may occur. Possible by-products of continued deforestation, fossil-fuel vehicles, and industrialization include both the erosion of the ozone layer and world-wide changes in weather patterns. What does this mean in relation to the security requirements of the United States? An unprecedented buildup of greenhouse gases may lead to a global warming pattern. One result would probably be a rise in average ocean temperatures, such as in the Gulf of Mexico. The likelihood is that hurricanes would then be stronger, plaguing shipping and coastal areas of the United States in future years.[111] Flood levels could change, water supplies could dry up, and forest fires might occur in greater abundance. Such climatic changes could affect agriculture by creating droughts, perhaps of such magnitude that the traditional breadbasket region of the U.S. would become a great dust bowl. This might require that the United States import the majority of its foodstuffs. Farfetched? Perhaps, but the likelihood that such cataclysmic events might actually occur is enough to warrant international concern and action.

If scientific predictions hold true, it may well be that the

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[110] Carpenter, U.S. News & World Report, (18 June, 1990), p. 47.

[111] Stephen H. Schneider, "Cooling It," World Monitor: The Christian Science Monitor Monthly, (July, 1990), p. 36.

repercussions of such acts as deforestation may prove to be of greater long-term consequence to the security of the United States than that of all other threats posed by Latin America. However, the environment is a volatile subject for two significant reasons. First, scientists disagree on the long-term inter-active effect of different pollutants on the environment and the ability of nature to counter it. Is global warming really a trend and what is the cause and effect truly going to be? In the United States, public concern for the environment "is being shaped by the blurring of scientific and economic facts under the impact of political opinion, media miscommunication, and a debate among battling scientists themselves."[112] Without consensus, application of policy is subverted. Second, sovereign nations sometimes will not, or cannot, comply with directives mandated by environmentalists. Developing countries generally look upon the developed world's new-found concern with the environment as somewhat hypocritical, since the lion's share of pollution and energy consumption still lies with the industrialized north. Furthermore, even when developing countries see merit in conservation and pollution control, environmental concerns may still receive a low priority in the face of short-term requirements to feed, clothe, and house poverty-stricken citizens. So, although there is a definite link between population growth, pollution, and resource depletion, before emissions can be slowed and contaminants controlled world-wide, the United States and other industrialized nations must take the lead in reducing their own pollutants. Consensus must then be reached with developing nations. Invariably, some scheme must be devised which will help manage and

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[112]Schneider, World Monitor: The Christian Science Monitor Monthly, (July, 1990), p. 30.

finance conservation programs in impoverished countries.

Progress was made at the 16th annual economic summit of the industrialized nations in Houston, Texas. With discussions far less centered on traditional economic issues than on how the participating nations could adapt themselves to a world no longer dominated by East-West tensions, the G-7 nations set 1992 as the target date to complete negotiations on a framework for limiting or stabilizing emissions of gases that contribute to global warming. By 1992, they also hope to complete a "global forest convention." Already, the G-7 nations have agreed to work with the new government of Brazil to protect its tropical rain forests.[113] Such international recognition of environmental problems is a very positive step. However, stronger consensus must still be reached by developed and developing nations, alike, over both problems and solutions before any real global environmental advances can be made.

c. Opportunities To Improve U.S. Security

Despite all the different threats to U.S. security that Latin America may pose, it is important to recognize that many opportunities for bilateral and multi-lateral cooperation exist which can favorably enhance the security needs of both the United States and Latin American countries. Up to this point, the key focus of this chapter has been on the threats to U.S. security from Latin America because they are the specific factors to which the United States must match military, economic, and other resources. As the previous section made patently obvious, Latin America is a region that the United States should neither ignore nor neglect. However, rather than focus solely

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[113]Hobart Rowen and Dan Balz, "Taking the Middle Road Toward a New World Economy," The Washington Post National Weekly Edition, (16-22 July, 1990), p. 22.

on the negative factors that force U.S. involvement in the region, it is just as relevant to consider the potential bonanza for U.S. security interests that could lie in a more positive relationship with any, or all, nations of Latin America.

In terms of U.S. security, the specific value of different regions of the world varies. As was previously noted, some areas have greater intrinsic value because they have large, cohesive, and well-educated populations, strong economies, healthy industrial bases, essential natural resources, high level of technological sophistication, or large standing military forces which can directly contribute to the strength of the U.S.. Other areas may have less overall value, but because they contribute to the defense of the United States, or other areas of intrinsic value, through geographic proximity, military technology, and/or strategy, they have extrinsic value.[114] No longer a backwater region, the United States must recognize the importance of Latin America to U.S. security concerns and how it is growing in value.

(1) Non-fuel Minerals. In 1980, for example, the industrial countries consumed at least 80 percent of the non fuel minerals used in the world.[115] While the import dependence of the United States on non fuel minerals is still relatively small, it is increasingly reliant on foreign sources of supply for metals. The U.S. was once nearly self-sufficient. U.S. allies, such as Japan and the European Economic Community, have much smaller mineral reserves than the United States and a higher mineral import dependence. The area comprising the former Soviet Union, on the other hand, is nearly

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[114]Michael C. Desch, "The Keys that Lock Up the World: Identifying American Interests in the Periphery," International Security, Vol. 14, No. 1, (Summer, 1989), p. 100.

[115]Raymond F. Mikesell, Nonfuel Minerals: Foreign Dependence and National Security, (Ann Arbor: The University of Michigan Press, 1987), p. 20.

self-sufficient in important minerals, with the notable exceptions of bauxite and cobalt.[116] As economic and population growth rates expand into the next century, the U.S. and its allies may find themselves vulnerable to an increasing dependence on mineral imports as domestic consumption increases. It is hoped that since the United States has a fairly well-diversified supply of mineral imports, and since substitute materials and new technologies may become available in the future, that U.S. access to strategic minerals will not be easily disrupted. Latin America now supplies the United States with about 30 mineral raw materials, including such strategic minerals as bauxite, columbium, manganese, and tantalum.[117] If these lines of supply within the Western Hemisphere remain open and available, the possibility of such a disruption are certainly lessened.

(2) Oil. A shift in trade patterns is another phenomena which makes Latin America more important to the United States. One example is oil. During the 1980s, the United States was the world's second largest producer of oil. However, U.S. oil production has been falling by about 5% a year. In addition, because of high U.S. oil consumption, additional oil imports were and have been required to satisfy demand. The United States now imports more than half of the oil it uses.[118] To compensate for this additional demand during the 1970s, the U.S. was largely dependent on oil from the Middle East. Today, the pattern of this dependency has shifted. The United States now receives significantly more oil from the Western

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[116] Mikesell, Nonfuel Minerals, p. 30.

[117] Lars Schoultz, National Security and United States Policy toward Latin America, (Princeton, NJ: Princeton University Press, 1987), p. 156.

[118] "Oil Brief: The Stuff of Wars," in The Economist, (12-18 January, 1981), p. 67.

Hemisphere than she receives from the Middle East. Oil from Mexico, for example, has increased to almost 25 percent of U.S. import, whereas oil imported from Saudi Arabia has dropped to only 2.6 percent.[119]

While crude oil flow patterns have changed, the vulnerability associated with a reliance on oil importation has not. Only a handful of nations produce oil, and the conflict-ridden Middle East is a mainstay producer. Many U.S. allies are heavily dependent upon oil from the region. While the erection of pipelines from Middle Eastern oil fields to destinations on the Mediterranean Sea and other points to the south is an attempt to reduce the possibility of disruption and to circumvent sole reliance on Persian Gulf shipping, the 1990 Gulf War illustrated the fragility of these pipelines. The export pipelines leading out of Iraq, for example, were quickly shut down. Tankers had to be escorted out of the Gulf and were then required to navigate traditional routes, such as around Cape Horn, to travel to Europe and other destinations. In a protracted war, Latin Americans could offer respite through their own oil production.

(3) Trade Routes. Speaking of trade routes, Latin America is important economically for a number of reasons, but especially because the continent stands astride several busy shipping lanes. Former U.S. Chief of Naval Operations, Admiral Carlisle A. Trost, stated in an address that "If we were to name the five most vital strategic choke points along our trade routes, most of us would pick the Persian Gulf first and the Cape of Good

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[119]Statement of John F. Lehman, Jr., Secretary of the Navy, in the hearings before the Seapower and Strategic and Critical Materials Subcommittee of the Committee on Armed Services, House of Representatives: 99th Congress, 1st Session (June 24, September 5, 6, and 10, 1985). The 600-Ship Navy and the Maritime Strategy, (Washington, DC: Government Printing Office, 1986) p. 276.

Hope, off South Africa, second. Third, fourth, and fifth, in whatever order you want to put them, would be the Caribbean, the Panama Canal, and Cape Horn, off South America. Three of the top five, then, are in this hemisphere."[120] The loss of control of a choke point affects U.S. control of the seas everywhere. Friendly ties help to keep the sea lines of communication open and improve trade relations.

(4) Free Trade Area. One example of a way to promote even greater U.S. interaction with Latin America is the development of a Free Trade Area (FTA). Mexican President Carlos Salinas de Gortari strongly believes that an FTA between the U.S. and Mexico might not only create jobs in Mexico, but in the United States, as well. Additionally, it could also help stanch the flow of illegal immigrants from Mexico to the U.S. Is this realistic? Considering that Mexico has the eleventh largest market economy in the world, that it is the third largest trading partner of the United States, and that in 1987 it had a gross domestic product of over $175 billion, it is certainly within the realm of possibility.[121]

A serious shortcoming is that, with respect to trade, the U.S. is much more important to Mexico than vice versa. In 1989, two-way trade between the United States and Mexico totalled $52 billion, but the United States accounted for 60 percent of Mexican trade, while Mexico only accounted for 6 percent of U.S. trade. By comparison, two-way trade with Canada and Japan, the number 1 and 2 trading partners of the United States, totalled $167

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[120] Admiral Carlisle A. Trost, USN, in an address entitled "Strategic Imperatives in Latin America," to The Commonwealth Club of San Francisco, CA, on 22 July 1988.

[121] Abraham F. Lowental, Partners in Conflict: The United States and Latin America, (Baltimore: The Johns Hopkins University Press, 1987), p. 69.

billion and $138 billion, respectively.[122] However, strong impetus by the Bush Administration makes such an association likely, which when combined with Canada will make it the largest common market in the world. While some problems cause concern, such as the low Mexican wages in relation to U.S. and Canadian wages, many analysts believe the abolition of trade barriers will be a boon for the United States. Since trade is the driving force of our economy, as barriers come down U.S. exports will increase. Since every 7 percent rise in exports adds 1 percent to the GNP, this translates into billions of dollars in revenue and hundreds of thousands of new jobs.[123] In addition to improving the U.S. economy, by integrating Mexico into the Western trading system, Mexico's wage rates can be raised up and other social and environmental problems can be more directly addressed. One byproduct of this action is that poverty and the spread of radical revolutions might be halted. The continued enjoyment of a stable and secure southern border allows the United States to maintain the perspective of an island nation rather than that of a garrison.

Although farther afoot, the North American free-trade agreement may set the structural framework for wider hemispheric free-trade arrangements. Brazil is another country with whom a special trade agreement could be an asset. With a 1987 gross domestic product of about $280 billion, Brazil ranked the seventh largest market economy in the

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[122] Lawrence E. Harrison, "Not So Fast: A Free Trade Area with Mexico may sound great, but would it really work?," The Washington Post National Weekly Edition, (16-22 July, 1990), p. 25.

[123] Warren T. Brookes, "The Economy: How U.S. Will Benefit From Free Trade With Mexico," The San Francisco Chronicle, (14 May, 1991), p. B-3.

world.[124] While Brazil does not have the proximity to the United States that Mexico does, she has borders with every other South American country, except Ecuador. Opening the door to Brazil could further open the other markets in South America, especially if a regional free trade agreement is ever reached between the South America countries.

Although many other examples can be cited, it can be stated that the U.S. stands to gain by increasing economic, financial, political, and military interaction with its Latin American neighbors. Within the last few decades, the stature of the United States has diminished in Latin American eyes, largely due to benign neglect. The U.S. government can shore-up its faltering image through the application of a more consistent and coherent policy within the region. Recognizing that there is disparity in the relative scales of economy between the United States and Latin American nations, an emphasis on the equal status of these nations as sovereign states, rather than as subordinates, would go far in promoting feelings of mutual respect and would help strengthen the U.S. relationship with each Latin American state. Simply put, the greater the feeling of mutual respect, the greater the possibility of positive interaction. With increased interaction, whether it be commercial, diplomatic, or military, it is hoped that the ability of the United States to influence events in Latin America will improve, thereby helping to mitigate the potential threats to U.S. security and open new doors of opportunity that will enhance U.S. interests.

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[124] Lowenthal, Partners in Conflict, p. 105.

C. MARITIME STRATEGY SOUTH OF THE TROPIC OF CANCER

Another method used to promote stronger ties, if not regional integration, is through a strong military relationship. A formal structure of alliances, treaties, and agreements already provides the United States with such global coalitions as the North Atlantic Treaty Organization (NATO). The Inter-American Treaty of Reciprocal Assistance of 1947 binds participating Latin American countries into a regional security alliance with the United States, but faith in the inter-American security system has waned, partly as a result of past U.S. unilateral military decisions in Latin America and because of the non-involvement of the United States in the 1982 Falklands War. Recognizing that Latin America is predominantly a maritime theater, the U.S. Navy has been developing bilateral, navy-to-navy, initiatives in South America. With the objective of improving U.S. - Latin American relations and expanding cooperation, current naval initiatives are now also geared to restoring faith in the inter-American security system. These bilateral programs are specifically aimed at increasing Latin American understanding of the U.S. maritime strategy and how it integrates into and supports other bilateral or alliance agreements that have been signed.[125]

The U.S. Navy is seeking a much more active and involved role between the U.S. and Latin navies, especially in those key countries where more extensive cooperative arrangements may be developed. It is hoped that shortfalls in capabilities, inter-operability, and standardization can be

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[125]Interview at the Pentagon with CAPT Pat Roth and CDR Jack Ahart, OP-613, Western Hemisphere Branch, Politico-Military Policy and Current Plans Division, 17 July 1989.

overcome so that each navy can contribute the maximum to mutual areas of interest, such as the security of the sea lines of communication in the Western Hemisphere and the deterrence of conflict in the region. Through the bilateral program, the Navy hopes to ensure that the importance of the maritime mission is articulated; that allied capabilities and constraints are factored into the development of the U.S. maritime strategy; that all aspects of the U.S. maritime strategy are understood and supported by allied partners; and, of course, that these relations will improve cooperation and mutual understanding.

UNITAS (Latin for unity) is a long-standing U.S.-Latin American exercise that is an integral part of the navy-to-navy program. An annual exercise that has been held since 1957, Unitas is one of the world's largest multi-national naval operations. This exercise joins ships, aircraft and naval ground forces of the U.S. fleet with a select number of South American navies. As an example, four ships from the U.S. Atlantic Fleet were deployed for six months, in 1991, to operate with the forces of nine South American navies in UNITAS XXXII. During the course of this deployment, the U.S. ships circumnavigated South America, transiting both the Straits of Magellan and the Panama Canal, and made numerous port calls along the way.[126] The extent to how well-received UNITAS is in Latin America is reflected in the high budget allocations that participants reserve for the exercise. It has been estimated that some countries use up to 60-70% of their annual naval budgets for this event.[127]

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[126]"A Common Bond: Unitas Links the Americas," AllHands, (April 1992), p. 29.
[127]Interview with CAPT Roth and CDR Ahart, Pentagon, 17 July 1989.

1. The Role of South America in the Maritime Strategy

If it is to be successful, Latin America must be an involved and active partner in the U.S. maritime strategy. Citing the Contadora initiative and the Arias plan as an indication of Latin American willingness to take responsibility to solve security crises, an Inter-American Working Group stated, "No longer is Latin America resigned to letting the U.S. define threats to Hemispheric security and to acquiescing in U.S. policies to cope with them." [128] In other words, the joint effort of both the United States and Latin America are required to maintain their mutual security.

In many cases, U.S. leadership will be indispensable. However, it may very well be that U.S. forces are subordinated to a combined regional commander. In any case, mutual support between allies must be constantly enhanced and the predominant attitude must be one that recognizes the essential equality of all partners. A combined doctrine requires planning, training and exercising to promote teamwork.[129] One of the major purposes of UNITAS, for example, is to smooth the coordination between U.S. and Latin American forces by working to enhance the inter-operability of equipment, techniques, and procedures. Ultimately, as a natural aspect of coalition warfare, geography and the unique capabilities of the various national forces available should be exploited to the advantage of the U.S. and its Latin American partners.

Consider the defense of shipping in the Western Hemisphere. As global trade increases, the protection of merchant shipping grows in

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[128]Statement of an Inter-American Working Group, "Collective Security in the Americas: New Directions," a World Peace Foundation Project, (June 1988), p. 3.

[129]Based on Joint Publication 1: Joint Warfare of the U.S. Armed Forces, "Molding the Joint Fighting Force," in Defense 92, (March/April 1992), p. 28.

importance. The U.S. commitment to naval control of shipping was readily apparent during the 1990 Gulf War when U.S. naval vessels were specifically designated for escorting oil tankers and other merchant vessels in and out of the Persian Gulf through the Straits of Hormuz. This U.S. commitment will certainly not waver if other supply lines are threatened, too. However, because of the increasing capabilities of the Latin American navies in the control of shipping the United States has been able to reduce its naval manpower commitments in the Southern Hemisphere. Based on the NATO doctrine of naval shipping control, Argentina, Brazil, Paraguay and Uruguay established the South Atlantic Maritime Area Command (CAMAS). With interest and concern in the defense of merchant shipping growing, this organization has helped to standardize shipping control procedures in the Western Hemisphere.[130] By using shared areas of responsibility during a war, it is possible that Brazil, for example, could pick-up convoy escort duties in the Atlantic Narrows, that region between Brazil and western Africa, to help the U.S. maintain control of allied shipping.

Some scoff at the naval capabilities of Third World nations, but the capacity for coastal protection, sea denial, and even limited power projection of a select number of these nations, especially in South America, is surprising. Furthermore, these capabilities are improving, whether by direct purchase or by forms of cooperative and indigenous production of naval vessels and armament systems. In addition, while these assets are not generally as sophisticated as those of the United States, some are; and others are quite

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[130]CDR Jeane H. Stetson, USNR, "Defense of Shipping in the Western Hemisphere: A Second Look," Naval War College Review, Vol. XLV, No. 2, Seq. 338, (Spring 1992), p.108.

capable of performing their respective missions above a threshold at which they would be considered credible and effective in any navy.

The 1982 South Atlantic War between Great Britain and Argentina provides a relatively recent example of the potential effectiveness of submarines operated by a Third World nation. After the H.M.S. *Conqueror* torpedoed and sank the Argentine cruiser General Belgrano, the Argentines were forced to recall all surface ships to port. Employing inferior sonar equipment against the British nuclear submarine force, the Argentines simply were unable to adequately prosecute their targets. However, the *San Luis*, an Argentine Type 209 submarine, succeeded in making two separate attacks against British surface ships by penetrating the British escort screen and firing by using sonar. Reportedly, the *San Luis* also launched a torpedo against one of the British nuclear submarines. Although the *San Luis* missed its targets, this engagement proved that a conventional submarine was capable of penetrating the defenses of a superior force, attack, and then evade an intensive 20-hour ASW search by the British.[131] The British might have sustained heavier losses, and even been repelled, if they had confronted a slightly larger and more modern sub force, such as the one the Argentines are now currently building.

The point of this example is that simple dismissal of current and future naval capabilities of South American countries is not justified. Great Britain and Argentina are now in a process of reconciliation,[132] but the result of their antagonism suggests that if a Latin nation's navy is strong enough to exert a

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[131] Wixler, "Argentina's Geopolitics and Her Revolutionary Diesel-Electric Submarines," p.99-100.

[132] Peter Truell, "U.S. Is Attempting to Nudge Argentina and Britain Toward a Reconciliation," The Wall Street Journal, 28 August, 1987, p. A-6.

viable threat to a nation with the naval force the size of Great Britain's that it would certainly be advantageous if it could be harnessed on behalf of U.S. and allied objectives. Nicholas Spykman observed that, "...the effect of force is in inverse proportion to the distance from its source."[133] Thus, it makes sense that the United States try to take advantage of those assets which might act as force multipliers for the U.S. in areas distant from the United States.

2. Latin America: Support the Maritime Strategy?

Why should Latin American nations contribute to the U.S. maritime strategy? Perhaps Admiral Trost best answered that question when he stated in an address:

> With some of the longest shorelines in the world and a network of great rivers, Latin America is a maritime theater in three dimensions: internal, coastal, and overseas. As ours does, their national life depends on free access to waterways. In this way we share a common outlook. As a result, we feel that much can be done on a navy-to-navy basis to help improve their security.[134]

When one considers that about half of Latin American exports travel through inter-American waters,[135] this fact alone is a significant impetus for Latin American involvement in a hemispheric maritime defense strategy.

In addition, most Latin American nations are just as interested as the United States in eradicating other threats to Latin American security, whether they be internal or external threats. By supporting the U.S. maritime strategy,

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[133]Nicholas John Spykman, America's Strategy in World Politics: The United States and The Balance of Power, (New York: Harcourt, Brace, 1942), pp. 165, 393-394, 448 as cited by Desch in "Keys that Lock Up the World," p. 99.

[134]Trost, "Strategic Imperatives in Latin America,address to the Commonwealth Club of San Francisco, (22 July 1988), p. 8.

[135]Stetson, "Defense of Shipping in the Western Hemisphere," Naval War College Review, p. 109.

the possibility of receiving greater access to economic, financial, and/or military assistance or cooperation from the United States increases. Certainly, it would provide an avenue for greater dialogue. It might also open the doors for other mutually beneficial programs.

One area of potential conflict, however, lies in the control of ocean resources, such as fish stocks, exploitable hydrocarbons and manganese nodules. Beginning in the 1960s, Latin American interest in ocean-bed rights, preferential fishing zones, and territorial seas grew, as it did in other parts of the world. Gathering momentum, the "national enclosure" movement was largely supported by Third-World states while most of the major maritime nations, including the United States, supported the traditional freedom-of-the-seas law. Expansive ocean zone claims in Latin America have therefore been a source of discord between the U.S. and Latin America.

As a result of the 1973 United Nations Conference on the Law of the Sea (UNCLOS), however, state coastal jurisdictional authority was expanded in the 1982 Convention on the Law of the Sea Treaty. While the degree of national control varies according to the type of zone, the broad trend is now toward greater regulation of ocean space through law. Extended zones include the territorial sea (which extends out to 12 nautical miles), the exclusive economic zone (EEZ) (which extends from the territorial sea out to 200 nautical miles), and the continental shelf (which can extend beyond 200 nautical miles). With qualification, many of the maritime powers have

belatedly accepted the "New Law of the Sea" as they realize its compatibility with their own resource interests.[136]

The United States now accepts the UNCLOS treaty, in principle, although the military rights of foreign states within the EEZ still remains a source of contention.[137] As a result, new opportunities for cooperation in exploiting offshore resources have arisen, especially in Latin America. However, since resources still remain a potential source of conflict, especially regional conflict, some guarantee against aggression would be welcomed. According to the Inter-American Working Group, the best guarantee against a unilateral intervention is by the use of a collective initiative.[138] By putting teeth back into the inter-American security system, through a revised maritime strategy, local and hemispheric security would be improved and the potential for intra-regional conflict in Latin America would be reduced.

Still, as a continent of extremes, harboring countries with vastly different indigenous resources, economic and military capabilities, and political heritages, there can be no reasonable expectation that any particular country in Latin America could, should, or would contribute to the maritime strategy to the same extent as another. By the same token, just as any one West European country is not expected to contribute to NATO to the same magnitude as the United States, neither should any one Latin American country be expected to contribute to the maritime strategy to the same extent as the United States. However, any contribution to the objectives of the

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[136]Michael A. Morris, Expansion of Third-World Navies, (New York, NY: St. Martin's Press, 1987), pgs. 8-9.

[137]Morris, Expanding Third-World Navies, p. 176.

[138]Statement of an Inter-American Working Group, "Collective Security in the Americas: New Directions," (June 1988), p. 7.

maritime strategy, even if only symbolic, may help deter conflict by strengthening alliance solidarity.

It is important that the United States refrain from second-guessing what the requirements for Latin American navies should be. As CNO, Admiral Trost was very studious in not publicly defining what other Latin American countries should or should not do, especially since the goal of the evolving U.S. - Latin American naval relationship is meant to be mutually supportive, not coercive.[139] However, it is also just as important to realize the limitations that each country may have, whether economic, technical, or otherwise, and to tailor tasking commensurate with their abilities and desires.

A definition of roles is important if the relative strengths of each nation participant is to be realized. To avoid treading on political toes, the individual desires of each Latin American country is referenced through the dialogue developed out of the navy-to-navy bilateral discussions. The focus on bilateralism helps to eliminate some of the more sticky political problems that often arise out of multilateral discussions. Indeed, U.S. - Latin American multilateral discussions have often proven to be less productive. This forum also emphasizes the naval relationship. By concentrating on discussions at this level, it is more likely that a constructive dialogue on the U.S. maritime strategy can be developed than by government-to-government discussion. Since the agenda of federal administrations tends to change more frequently than does that of naval leadership, the navy-to-navy focus also helps to create greater continuity.

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[139] Interview, OP-613, 17 July 1989.

It is hoped that when key countries are recognized for their individual assets that more extensive cooperative arrangements may be realized. First, however, is the requirement to analyze relative strengths and capabilities.

III. LATIN AMERICAN POWER AND MARITIME CAPABILITIES

When considering the strategic balance of power, the United States must continually strive to identify those countries sympathetic to its goals as well as those strong enough to be helpful. It must calculate the capabilities and intentions of both enemies and allies. Therefore, assessing the extent to which Latin American nations can effectively cooperate with the United States is an important question. However, each nation must be assessed individually since the diverse natures and sizes of the different nations that comprise Latin America are indicative of differences in capabilities of these states. It can be stated that the higher the capability of a nation the higher becomes the potential for either cooperation or competition with the United States. One hopes that this capability can be harnessed into cooperation. Therefore, those Latin American nations which can best compete in the international arena might best serve the interests of a revised maritime strategy. Furthermore, within the same hemisphere, these same nations may prove to be a prime U.S. source for cooperative ventures, such as the co-production of naval armaments. With this in mind, the intent of the following discourse is to flesh out those Latin American nations which have the greatest national power, the most potent naval capabilities and which hold the best potential promise for effective arms cooperation.

Perhaps the simplest method of illustrating Latin American power is on a cross-comparison basis. For ease of comparison, a matrix of like variables can be used to help illustrate relative capabilities. However, a very large number of variables factor into answering the bottom-line question of capability. In

addition, variables are subject to interpretation in the assignment of values, or weighting, and are therefore sometimes difficult to quantify. Furthermore, values are dated by the time frame in which the database was collected. In other words, a matrix can only provide a snapshot perspective.

Since so many possible variables might comprise such a matrix, it is simpler to select those main elements of power upon which scholars generally agree as the basic building-blocks with which one might assess the relative strength of a state. By choosing a select few variables that relate to power, a mix of strategic, military, economic, and political factors, one can then illustrate relative capabilities in a tabulated format. Although such a matrix would only be a quick study in national power, it would contain the main elements which factor into the calculus of the ability of a state to wage war. For our purposes, it would also hint at the respective abilities of Latin American nations to sustain an effective naval force.

A. NATIONAL POWER TRENDS IN LATIN AMERICA

Ray S. Cline, former Director of Intelligence and Research for the U.S. Department of State (1969-1973) and former Deputy Director of Intelligence for the U.S. Central Intelligence Agency (CIA), stated that national power is "determined in part by the military forces and the military establishment of a country but even more by the size and location of territory, the nature of frontiers, the populations, the raw material resources, the economic structure, the technological development, the financial strength, the ethnic mix, the social cohesiveness, the stability of political processes and decision making

and finally, the intangible quality usually described as national spirit."[140] To help quantify geopolitical strengths and weaknesses on a scale, Cline developed a formula to measure power:

$$Pp = (C + E + M) \times (S + W)$$

Each character in the formula is defined as follows:

Pp = perceived power
C = critical mass: population + territory
E = economic capability
M = military capability
S = strategic purpose
W = will to pursue national strategy

By deriving and factoring the coefficients, the power base of each Latin American nation can be distilled to a single value. A cross-comparison of these values can then be accomplished. The following is a summary of Cline's findings.

Critical mass, the first factor in Cline's formula, is a combination of population and territory. Population is used as the first approximation of the strength of a nation. Those nations with populations in excess of 50 million are generally considered world powers, although nations with populations in excess of 15 million, according to Cline, are often considered influential. However, since the validity of this assumption is mitigated by nations with high populations but low per capita incomes, scores are reduced by 50% for those nations with populations in excess of 500 million but with less than $500 per capita GNP. As a baseline, based on population alone, the United States is given a power rating value of 50 (See Table 3).

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[140] Ray S. Cline, World Power Trends and U.S. Foreign Policy for the 1980s, (Boulder, CO: Westview Press, 1980), p. 16.

TABLE 3
POPULATION (15 MILLION OR MORE)

RANK/COUNTRY	POPULATION (millions)	PERCEIVED POWER WEIGHTS
1. China (PRC)	1,014	25
4. United States	219	50
6. Brazil	123	30
11. Mexico	67	17
29. Argentina	26	6
30. Colombia	26	6
39. Peru	17	4

SOURCE: Ray Cline, World Power Trends and U.S. Foreign Policy For the 1980s, p. 37. Although world population figures have expanded, relative rankings (for the criteria of this table) remain the same in Latin America. Based on the 1990 census, only Venezuela would be added to the table.

The next factor for critical mass is land area (see Table 4). Generally, the larger the territory the greater the available raw resources and arable land. Considerations such as large desert areas or tundra reduce the available area for cultivation, thereby reducing the possible maximum score for territory. On the other hand, a bonus value (10 points) is added to those states which occupy crucial strategic locations on or near critical sea lanes or ocean choke-points and are perceived capable of exercising some capability to exercise control over these locations. An "*" is added in Table 4 for those states which occupy such locations.

TABLE 4
TERRITORY

RANK/COUNTRY	AREA (thousands of square miles)	PERCEIVED POWER WEIGHTS
1. USSR	8,600	50
4. United States	3,600	50
5. Brazil	3,300	50
8. Argentina*	1,100	25
13. Mexico	764	10
19. Peru	496	7
25. Colombia	440	5
26. Bolivia	424	5
31. Venezuela	352	5
36. Chile*	286	15
52. Paraguay	157	5
65. Ecuador	106	5
77. Guyana	83	5
81. Uruguay	72	5
85. Nicaragua	57	5
86. Surinam	55	5
92. Panama*	29	10

SOURCE: Ray Cline, World Power Tend and U.S. Foreign Policy for the 1980s, pgs. 41-43.

The addition of the values for population and territory provides a new rank list for the initial factor of critical mass. Countries with territories greater than 500,000 square miles and populations of more than 15 million were included in this list (see Table 5). While it is only a crude indicator, a nation's image of power is often based upon the perception created by its critical mass.

TABLE 5
CRITICAL MASS

RANK/COUNTRY	POPULATION	TERRITORY	TOTAL
1. USSR	50	50	100
2. U. S.	50	50	100
3. Brazil	30	50	80
10. Argentina	6	25	31
16. Mexico	17	10	27
36. Peru	4	7	11
37. Colombia	6	5	11

SOURCE: Ray Cline, World Power Trends and U.S. Foreign Policy for the 1980s, p.46.

Adding economic strength to our perspective helps to refine the crude indicator of critical mass. One reason why the economic capacity of a nation is important is because it serves as an indication of that nation's potential ability to support its military during a conflict and still maintain a high level of economic activity. Measurement of economic strength is difficult, though, since so many indicators can play into the total, that is the summation, of an economy. In addition, what may be considered an indication of economic strength under certain conditions may prove to be the opposite under a different set of conditions. To narrow the scope of this task, a range of indicators was selected which stress the ability of one nation to exert influence upon others.

The first measurement of economic capability is a nation's Gross National Product (GNP). However, any special strengths or weaknesses of an economy are not readily apparent when cloaked in the aggregate number known as GNP. Therefore, factors used to modify this measure are grouped under the following categories: energy, critical minerals, industrial strength, food

production and foreign trade. A base score was awarded for the GNP of each country. If an economy had specific strengths additional points were awarded, for a maximum of 20 units, in each of the five categories. Specific weaknesses were awarded negative values. The following tables summarize Cline's findings.

TABLE 6
ENERGY ASSESSMENT

RANK/ COUNTRY	PETROLEUM	COAL	NATURAL GAS	NUCLEAR	TOTAL
1.S.ARABIA	10	--	--	--	10
7 VENEZUEL.	3	--	--	--	3
19 MEXICO	1	--	--	--	1
25 ARGENTIN	--	--	--	1	1
36 U.S.	-8	2	-2	4	-4

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, p. 67.

TABLE 7
CRITICAL NON FUEL MINERALS ASSESSMENT

RANK/ COUNTRY	IRON ORE	COPPER	BAUXITE	CHRO-MITE	URANIUM	TOTAL
1AUSTRAL	8	–	3	--	–	11
3 BRAZIL	6	-1	--	--	–	5
6 CHILE	–	3	--	--	–	3
14 PERU	–	1	--	--	–	1
16 SURINA	–	–	1	--	–	1
20 VENEZUE	1	–	--	--	–	1
26 U.S.	-3	-1	-3	-2	3	-6

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, p. 73.

TABLE 8
INDUSTRIAL PRODUCTION ASSESSMENT

RANK/ COUNTRY	STEEL	ALUMINUM	CEMENT	TOTAL
1. U.S.S.R.	10	1	5	16
2. U. S.	8	5	3	16
10. BRAZIL	1	--	1	2
16. MEXICO	--	--	1	1

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, p. 76.

TABLE 9
FOODS (MILLIONS OF METRIC TONS)

RANK/ COUNTRY	WHEAT	COARSE GRAINS	RICE	TOTAL	POWER WEIGHT
1. U. S.	25.4	51.5	2.3	79.2	20
3. ARGENTIN	5.6	8.8	0.2	14.6	4
16. PERU	- 0.9	- 0.9	NEGLIGIBLE	- 1.4	0
17. CUBA	- 0.8	- 0.4	- 0.2	- 1.4	0
18. MEXICO	NEGLIGIBLE	- 1.5	NEGLIGIBLE	- 1.5	0
20. VENEZUEL	- 0.7	- 1.0	NEGLIGIBLE	- 1.7	0
21. BRAZIL	- 3.3	1.2	0.3	- 1.8	0

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, p. 79.

TABLE 10
WORLD TRENDS (BILLIONS OF U.S. DOLLARS)

RANK/ COUNTRY	EXPORTS	IMPORTS	TOTAL TRADE	POWER WEIGHT
1. U. S.	143.7	183.1`	326.8	20
21. BRAZIL	12.7	15.0	27.7	2
29. VENEZUELA	9.1	8.7	17.8	1

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, p. 81.

TABLE 11
ECONOMIC CAPABILITY ASSESSMENT
(POWER WEIGHT)

RANK/ COUN-TRY	GNP (100)	ENERGY	CRITI-CAL MINE-RAL	INDUS TRIAL PRODUC T	FOOD	WORLD TRADE	TOTAL (200)
1 U.S.	100	-4	-6	16	20	20	146
12 BRAZI	6	--	5	2	--	2	15
22ARGEN	2	1	--	--	4	-	7
23VENEZ UELA	1	3	1	--	--	1	6
28MEXI CO	3	1	--	1	--	--	5
37 CHILE	1	--	3	--	--	--	4
48 PERU	1	--	1	--	--	--	2
58COLOM	1	--	--	--	--	--	1
62SURINA	--	--	1	--	--	--	1

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, p. 83-85.

TABLE 12
CONSOLIDATED RANK LIST
CRITICAL MASS AND ECONOMIC CAPABILITIES
(POWER WEIGHTS)

RANK/ COUNTRY	CRITICAL MASS	ECONOMIC CAPABILITY	TOTAL
1. UNITED STATES	100	146	246
4. BRAZIL	80	15	95
14. ARGENTINA	31	7	38
16. MEXICO	27	5	32
33. CHILE	15	4	19
44. PERU	11	2	13
46. COLOMBIA	11	1	12
47. VENEZUELA	5	6	11
64. SURINAME	5	1	6
72. JAMAICA	---	1	1

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, pgs 87-89.

Expanding Cline's formula to include military capability as an element of national power (Pp = C + E + M), weighting is based upon the combined

factors of nuclear (100 possible points) and conventional (100 possible points) capabilities, for a maximum possible score of 200 power points. Although the values accorded both nuclear and conventional weapons capability are highly subjective, perceptions of military might are an important aspect of international relations and are extremely influential in regional balances of power.

Few nations retain the ability to bring nuclear weapons to bear upon their neighbors, but it is considered that the deterrent effect of having such a capability exerts a political pressure of such a magnitude sufficient that it need be rated on a separate scale from conventional weapons. Although a discussion on the politics and nature of nuclear weapons is beyond the scope of this chapter, it should be noted that the risks associated with the use of nuclear weapons and the level of warfare at which their actual use might be considered can also be regarded as limiting factors. Nevertheless, the perception of power associated with ownership of a credible nuclear weapons capability is greatly enhanced over perceptions of power associated solely with conventional forces.

On the other hand, a more flexible and tangible role is played by non-nuclear conventional forces. Most of the world's nation's support some form of an armed force. Although few of these nations have forces with power projection capabilities, self-defense or domestic control being their primary purpose, many do retain a relatively high level of capability. Comparisons, however, can be difficult since estimating military power can be extremely subjective.

In Latin America, only Brazil and Argentina have mustered an effort at joining the nuclear club. Since their capability is still largely relegated to the

research stage, no comparisons shall be attempted in this arena. More appropriately, an evaluation of conventional combat capabilities can be made by comparing four elements of strength: manpower quality; weapon effectiveness; infrastructure and logistic support; and organizational quality. Comparisons in each category can be very subjective since it is difficult to weight such intangibles as experience or level of readiness and training. In addition, obtaining accurate information on foreign forces can also be difficult. In any case, a relative scale of capability can still be established. The following table is based on Cline's figures:

TABLE 13
NON-NUCLEAR MILITARY FORCES
(ESTIMATES OF EQUIVALENT COMBAT CAPABILITIES)

RANK/ COUNTRY	MAN POWER (thsnds)	MAN POWER QUALITY	WEAPON EFFECTIVENESS	INFRASTRC-TURE & LOGISTIC	ORGANIZATIONAL QUALITY	COEFFICIENT AVERAGE	UNITS OF COMBAT CAPABILITY
WARSAW PACT							
1.U.S.S.R.	4,335	0.7	0.9	0.7	0.5	0.7	3,035
UNITED STATES AND NATO							
1. U.S.	2,068	1.0	1.0	0.9	0.8	0.9	1,861
LATIN AMERICA							
1. BRAZIL	274	0.4	0.4	0.4	0.3	0.4	110
2. CUBA	159	0.4	0.5	0.3	0.4	0.4	64
3. ARGEN	133	0.4	0.4	0.4	0.3	0.4	53
4. MEXICO	97	0.4	0.3	0.5	0.3	0.4	39

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, p.125-128.

Strategic reach adds to a nation's combat capabilities. A function of geographic position and a nation's capacity for power projection, strategic reach acts as a multiplier in computing military power. Therefore, Cline used

conversion factors to convert the values associated with combat capability into that of total conventional military capability. Negligible reach was indicated by a multiplier of 0.01; limited reach was indicated by a multiplier of 0.02, while the reach of the United States was indicated by a multiplier of 0.05. Additionally, a maximum of 10 bonus points were added to those nations which devoted greater than 8 percent of their GNP to military expenditures (scale of effort).

TABLE 14
TOTAL MILITARY CAPABILITY ASSESSMENT
(NON-NUCLEAR)

RANK/ COUNTRY	UNITS OF COMBAT CAP-ABILITY	STRATEGIC REACH	NET TOTAL	STRATEGIC MILITARY	EFFORT BONUS	TOTAL POWER WEIGHT
1 U.S.S.R.	3,035	0.03	91	100	6	197
2. U. S.	1,861	0.05	93	95	–	188
25. BRAZIL	110	0.02	3	---	–	3
31. CUBA	64	0.03	2	---	–	2
32.ARGENT	53	0.03	2	---	–	2
45. MEXICO	39	0.01	0	---	–	0

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, p. 136-137.

TABLE 15
CONSOLIDATED RANK LIST
CRITICAL MASS, ECONOMIC AND MILITARY CAPABILITIES
(POWER WEIGHTS)

RANK/ COUNTRY	CRITICAL MASS	ECONOMIC CAPABILITY	MILITARY CAPABILITY	TOTAL
1. U. S.	100	146	188	434
4. BRAZIL	80	15	3	98
14. ARGENTINA	31	7	2	40
21. MEXICO	27	5	---	32
35. CHILE	15	4	---	19
51. PERU	11	2	---	13
52. COLOMBIA	11	1	---	12
53. VENEZUELA	5	6	---	11
67. SURINAME	5	1	---	6
74. CUBA	---	---	2	2
75. JAMAICA	---	1	---	1

SOURCE: RAY Cline, World Power Trends and Foreign Policy for the 1980S, p. 138-139.

Based upon the most concrete elements of power, Table 15 provides a rough guide to the level of influence, or leverage, which the listed nations exert in the international arena. The table does not, however, take into account some of the very important intangibles which can shape and affect a state's ability to reach and effectively use its potential capabilities. Therefore, there are two additional elements of power which Cline considers critical factors in his formula; they are the elements of national strategy and national will. National strategy (S) is defined as the process of political decision-making which establishes the goals and objectives of a state to advance its national interest in the international environment. National will (W) is that degree of resolve with which a state's citizens can be mobilized to support the defense and foreign policy decisions of their government. National will is then "the foundation upon which national strategy is formulated and carried

through to success."[141] If a coherent national strategy is lacking or if there is little organized national political will to carry out a strategy, a nation's ability to effectively use its resources can be seriously hampered in the international arena.

Measurement of national strategy and national will is highly subjective. However, an accurate assessment of these two elements can help more clearly depict a nation's true power base than can an assessment of the tangible elements alone. The interesting fact is that the addition of these two elements (S + W) can significantly alter the sum total of the other elements (C + E + M) when used as a multiplier (C + E + M) x (S + W). For example, since a maximum of 2 points may be assigned (1 point for national strategy and 1 point for national will), if a nation were to receive the maximum number of points for these two intangible elements its originally assessed score would be doubled. A combined score of 1 point would not change the original assessment, and an index of less than 1 would reduce it. Only nations with clear-cut strategic plans for exercising power or expanding its level of influence, combined with a socially, psychologically and politically cohesive citizenry, could expect to maximize its base of power. Those nation's with a less cohesive or confused strategic policy and a feeble national will may have of an impact on the regional or international balance of power.

The fabric of national will is generally based upon the degree of cultural integration of a nation's people and their feeling of belonging to that nation; the effective strength of national leadership; and the perception of relevance of national strategy to national interests by a nation's people. Of these aspects,

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[141] Cline, World Power Trends and U.S. Foreign Policy for the 1980s, p. 143.

research shows that cultural uniformity and national territoriality are the most significant factors affecting nationalism and the process of national integration.[142] Homogeneity in language, religion and ethnicity often contributes to national integration, whereas cultural diversity can make integration more difficult. The greater a sense of historical identity with a state and the less that a territory is divided by tribal or regional issues, the greater the loyalty that a people will feel towards that state. Geographical contiguity and the state of a nation's communication and transportation systems can also affect national integration.

To account for these variables within the element of national will, Cline allocated values based on relative importance as follows[143]:

1. Level of national integration	
a. Cultural integration	25%
b. Territorial integration	8%
2. Strength of national leadership	
a. Governmental policy capability	17%
b. Level of social discipline	17%
3. Relevance of strategy to national interest	33%

The total of 100% still equates to a maximum rating of 1 while the norm is 0.5. As previously noted, the addition of the scores for national strategy and national will can dramatically affect an assessment of national power when used as a multiplier in the formula Pp = (C + E + M) x (S + W). This is illustrated in the following consolidated rank list.

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[142] Cline, World Power Trends and U.S. Foreign Policy for the 1980s, p. 167.
[143] Cline, World Power Trends and U.S. Foreign Policy for the 1980s, p. 171.

TABLE 16
FINAL ASSESSMENT OF PERCEIVED POWER

RANK/ COUNTRY	PWR WGT (C + E + M)	STRATEGY (S)	WILL (W)	STRATEGY & WILL	TOTAL
1. U.S.S.R.	382	0.7	0.5	1.2	458
2. U. S.	434	0.3	0.4	0.7	304
3. BRAZIL	98	0.6	0.8	1.4	137
22ARGENTINA	40	0.5	0.3	0.8	32
23 CHILE	19	0.6	0.7	1.3	25
28. MEXICO	32	0.3	0.4	0.7	22
45 PERU	13	0.5	0.5	1.0	13
48 COLOMBIA	12	0.5	0.5	1.0	12
55VENEZUELA	11	0.4	0.4	0.8	9
68 SURINAME	6	0.3	0.3	0.6	4
70. CUBA	2	0.7	0.5	1.2	2
75. JAMAICA	1	0.4	0.5	0.9	1

SOURCE: Ray Cline, World Power Trends and Foreign Policy for the 1980S, p. 173-174.

As a result of factoring in the elements of national strategy and national will, despite changes in overall ratings, only the relative rankings of Chile and Mexico are changed within the Latin American region. When compared against all other nations, relative rankings traded up and down. In any case, clearly Brazil was assessed as the preeminent power within Latin America. When compared against powers outside the region, Brazil again ranked very high, especially when the more intangible factors of national strategy and national will were considered.

Now, a decade after World Power Trends and Foreign Policy for the 1980s was published, significant changes in world population, international political boundaries, national economies, military capabilities, governments, and even political sentiment within every region of the world would surely revise the picture presented by Cline if he were to conduct another

assessment of world power trends today. Since our focus is on Latin America, however, a revised consolidated rank list that compares all nations of the world is not required. Only the relative ranking of nations within the Western Hemisphere need be emphasized. Such a reassessment would show that while significant change had indeed occurred within the region, a realignment in the balance of power had not.

B. RANKING LATIN AMERICAN NAVIES

Having identified those Latin American nations which currently possess the greatest national power, what level of naval capability do these nations maintain and which of these is the most potent? This question is largely answered by Michael Morris, a professor of political science at Clemson University, who wrote a book entitled Expansion of Third-World Navies. His work documents the expansion of Third-World naval forces, the roles of these forces and their impact on the regional and international balance of power. A cross-regional comparison of maritime capabilities completes his analysis. Published in 1987, the book is an independent study which, in the process of researching the national power base of navies, corroborates many of Cline's findings.

Morris ranked Third-World navies within the structure of a hierarchy. Divided into six categories, or groups, each category represents a different level of naval capability. The higher the category in which a navy was ranked, the more ambitious a role that that navy was considered capable of assuming, especially in terms of sea-keeping and geographic reach.

Initial classification within a category was based solely upon quantitative criteria relating to weapons, systems and platforms of each navy. These

rankings were then refined by qualitative criteria such as age and modernity. A high rank could be merited only when both quantitative and qualitative criteria were impressive.

In a third stage of classification, factors related to naval power were taken into consideration, including tonnage, naval aviation, marines, separate coast guard organizations and domestic production of naval weaponry. Generally speaking, such criteria are often non-existent in the lower-ranked navies. Since the correlation between original naval rank and supplementary criteria tended to be strong, reclassification was the exception at this stage.[144]

In a fourth stage of classification, national power-base indicators were used to judge the ability of each nation to sustain an effective fleet. The stronger a nation's infrastructure, the greater its ability to acquire, manage and maintain a more sophisticated and competent navy. National power indicators also help detect whether a navy is robust or declining in power.

Listed in ascending order of capability, the six ranks of naval classification are described in Table 17.

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[144]Michael A. Morris, Expansion of Third-World Navies, (New York, NY: St. Martin's Press, 1987), p. 28.

TABLE 17
THIRD-WORLD NAVAL HIERARCHY

NAVAL CATEGORIES	NAVAL/ NAVAL AVIATION STRUCTURE	NAVAL CAPABILITIES	PRODUCTION/ SUPPLY CHARACTERISTICS
6. REGIONAL FORCE PROJECTION NAVIES	All Third-World naval and naval aviation equipment categories strongly represented. More than 15 major warships and/or submarines.	Impressive territorial defense capabilities and some ability to project force in the adjoining ocean basin.	Thriving national military construction industry with some indig. designed and licensed nav. and naval aviation construction; large naval expansion program incl. imports.
5. ADJACENT FORCE PROJECTION NAVIES	Most Third-World naval and naval aviation equipment categories well represented. More than 15 major warships and/or submarines.	Impressive territorial defense capabilities and some ability to project force well offshore (beyond the EEZ).	Some lic. production and limited/ no indig. designed naval and nav. aviation construction; considerable naval expansion program including imports.
4..OFFSHORE TERRITORIAL DEFENSE NAVIES	Quite a few Third-World naval and naval aviation equipment categories well represented, including some larger units at upper levels. 6-15 warships and/or subs	Considerable offshore territorial defense capabilities up to EEZ limits.	Very limited, if any, indigenously designed production and limited/ no licensed naval aviation construction rate of foreign naval acquisitions varies widely.
3.INSHORE TERRITORIAL DEFENSE NAVIES	Third-World naval and naval aviation equip. categories moderately represented at lower levels and only sparsely represented at upper levels, if at all. 1-5 major warships and/or subs	Primarily inshore territorial defense with limited offshore defense capability.	Even licensed naval construction very limited; rate of foreign naval acquisitions varies widely.
2. CONSTABULARY NAVIES	Sparse representation of Third-World naval equipment categories at lower levels only. Naval aviation minimal or non-existant. No major warships, but fast attack craft (FAC).	Some ability to prevent use of coastal waters, with concentration on constabulary funtions.	Near total reliance on naval/naval aviation imports, which in any event are extremely limited.
1. TOKEN NAVIES	Only minimal rep. at lower levels of Third-World naval equipment categories. No FAC; only patrol craft and/or landing craft. Naval aviation non-existent.	Unable even to patrol national territorial seas effectively. Impotent in the EEZ.	Total reliance on naval/naval aviation imports, which in any event are extremely limited.

SOURCE: Michael A. Morris, Expansion of Third-World Navies, (New York, NY: St. Martin's Press, 1987), pgs. 25, 26, and 32.

In his hierarchy, Morris ranked 104 Third-World navies. Out of this total number, he ranked 62 of them as token navies, while only 3 merited classification in the top rank. Within each of the six rank classifications there is also disparity in capability, with some rising to the top of their category, on the verge of being reclassified to the next rank, while others find themselves near the bottom of the category in which they have been classified. Expansion or contraction of budgetary commitments, number, type, age and diversification in weapons, systems and platforms, all act as indicators to the hierarchical ordering within a rank.

Still, each rank is distinct. Although there may be an overlap in capabilities between ranks, such as an emphasis on territorial defense between Rank 3 and Rank 4 navies which vary only in degree of capability, the threshold between each rank is substantial. In other words, aspiration to a higher rank would require a nation's political and financial commitment to acquire and maintain a more powerful, hence more expensive, navy. Those nations with grand aspirations but tight purse strings are unlikely to succeed in expanding the infrastructure, obtaining the equipment, and providing the training that is necessary to achieve the status of a higher rank navy. In addition, because of the increasing costs of warships, lead time for procuring ships and equipment, as well as the heavy costs associated with long-term maintenance, the threshold between ranks grows exponentially. So, while the commitment necessary to cross the threshold between a Rank 1 and Rank 2 navy is substantial, it is no where near as intense as the sustained commitment necessary to cross the threshold between a Rank 5 and Rank 6 navy.

Using 1978 dollars and exchange rates and data obtained from the Stockholm International Peace Research Institute (SIPRI), typical annual expenditures for Rank 6 navies is $250-$500 million; Rank 5 navies is $150-$250+ million; Rank 4 navies is $70-$200 million; Rank 3 navies is $11-$100 million; Rank 2 navies is at least $10 million; and Rank 1 navies is several million dollars, at most.[145] With costs like these, Third-World nations who are expanding their navies are normally candidates only for the next rank. In fact, spending has generally been fairly stable, with nations maintaining a commitment to their navies at a level which allows them to retain their current ranking. Few navies are allowed to decline to the extent that they drop in rank.[146]

A significant problem that must be faced by many Third-World navies, especially those in Latin America, is the aging of their fleets. Often bought second-hand after World War II, these vessels are becoming increasingly difficult to maintain and repair. The cost to import, license, or otherwise build new warships and submarines is increasingly costly and time-consuming. Plans to refurbish, buy, or build replacements are at the mercy of budgetary constraints and domestic and foreign political concerns.

In Latin America, new appropriations were generally curtailed in the latter part of the 1980s because of fiscal and economic instability. As a result, they have had to make do with some equipment that is overdue for replacement. One example is the Brazilian light aircraft carrier, *Minas Gerais*. A British Colossus class carrier that was first placed into service in 1945, it was purchased from Great Britain in 1956 and refitted in 1960. Plans to purchase

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[145]Morris, Expansion of Third-World Navies, p. 82.
[146]Morris, Expansion of Third-World Navies, p. 51.

one or two small carriers to replace this vessel were canceled in 1985 and a refit was postponed in 1989.[147] When I visited Rio de Janeiro aboard the aircraft carrier USS Abraham Lincoln (CVN-72) in the Fall of 1990, the *Minas Gerais*, which had been laid-up in port, put out to sea for one day as a showing of the flag. However, it is doubtful that she could have supported any real or extended operations.

As seen from the previous table, Rank 1, or token, navies are very weak. They may possess a few small coastal craft and have little other than a formal organizational structure. Rank 2, or constabulary, navies possess a combination of coastal patrol craft (PC) and fast patrol craft (FAC) in varying numbers. Although these light forces have limited coastal enforcement capabilities, their armaments of missiles and torpedoes can be dangerous when used effectively against larger warships.

Rank 3, or inshore territorial defense, navies use corvettes in addition to FACs. Larger and more capable than FACs, corvettes provide a relatively inexpensive complement to the few frigates and destroyers they may possess. Only Ecuador currently also possesses submarines. Still, while their range and at-sea capabilities are more extensive than FACs, the use of corvettes is generally restricted to coastal missions.

Rank 4, or offshore territorial defense, navies do not have the depth of higher echelon navies, but they do possess a diversified complement of frigates, destroyers and submarines. Frigates are the logical step in price and capability for Third-World nations expanding their navies. They possess the

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[147] Bernard Prezelin, ed., and A. D. Baker, III, English language editor of The Naval Institute Guide to Combat Fleets of the World 1990/1991, (Annapolis, MD: Naval Institute Press, 1990), pgs. 37-38.

ability for deep-water missions and can easily be retrofitted for new weapons systems. When complemented by destroyers, a well-trained Rank 4 navy can pose considerable threat to larger warships. In addition, Rank 4 navies often possess conventional submarines. These submarines are particularly difficult to detect in the shallow waters near a coast and could create a mettlesome problem for surface vessels intending to trespass territorial waters.

Rank 5, or adjacent force projection, navies possess enough of the major warships and submarines necessary to effectively patrol seas adjacent to national zones. Chile and Peru, for example, aspire to control their respective EEZs.[148] In addition to the capabilities of lower ranked navies, Rank 5 navies possess cruisers and a naval aviation capability. Aircraft are generally limited to helicopters, but they provide a strong anti-submarine warfare (ASW) capability. Maritime patrol aircraft are used for reconnaissance. Combat aircraft are a luxury which few Third-World countries can afford.

Rank 6, or regional force projection, navies are well represented in all categories of naval and naval aviation equipment. They are outfitted with vessels as diverse as supply ships to mine-warfare and amphibious craft. The depth of their navies is partially supported by both licensed and indigenously designed and produced ships, aircraft, equipment, and weapons. The size and capability of their navies enable them to support a multi-mission role which, although focused on territorial defense, is capable of some offshore power projection. When compared against maritime powers, such as the United States, however, even Rank 6 navies are at a decided disadvantage. This gap was illustrated by the British during the Falklands War, in 1982, when they

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[148]Morris, Expansion of Third-World Navies, p. 44.

bottled-up most of the Argentine fleet in port. Still, the Argentines managed to sink the British destroyer *Sheffield* and they forced the United Kingdom to deploy the majority of the Royal Navy to engage in the conflict.

Table 18 exhibits the Third-World naval hierarchy. Nations are listed by rank, region, and rank within region. In reviewing this table, the point is quickly brought home that most Third-World nations have only a very rudimentary naval capability. On the other hand, with the exception of the Caribbean region, the table indicates that Latin America has a strong naval tradition... certainly, by Third-World standards. Two of the three Rank 6 navies; two of the five Rank 5 navies; three of the ten Rank 4 navies; and four of the twelve Rank 3 navies are from Latin America. In other words, over one-third of the Third-World's strongest navies are of Latin American origin. So, while the Latin American naval bloc cannot be compared to the cooperative might of NATO's, their capabilities are significant, nevertheless, and is the strongest of any region in the Third-World.

The Brazilian Navy is ranked as the most powerful in Latin America and vies with the Indian Navy as the most powerful navy in the Third-World. Argentina is ranked next, with Peru and Chile in more distant pursuit. As is the usual case in Latin America, the Brazilian Navy is a much smaller cadre than is their army, but the size of the national economy enables the Brazilians to support a well-diversified maritime branch. A large shipping industry and an expanding arms industry also enable the Brazilians a modicum of self-sufficiency in all areas of warfare.

TABLE 18
THIRD-WORLD NAVAL HIERARCHY

NAVAL CATGORY	SOUTH AMERICA	CENTRAL AMERICA & CARIB.	AFRICA	MIDDLE EAST & SUB-CON-TINENT	FAR EAST	TOTALS BY NUMBER & PERCENT
6. Regional Force Projection Navies	BRAZIL ARGENTIN			INDIA		3 FOR 1.9%
5. Adjacent Force Projection Navies	PERU CHILE			IRAN	N. KOREA S. KOREA	5 FOR 4.8%
4. Offshore Territory Defense Navies	VENEZUEL A COLOMBIA	MEXICO	EGYPT LIBYA	PAKISTAN	INDONESI A THAILAND TAIWAN PHILIPPINE	10 FOR 9.6%
3. Inshore Territory Defense Navies	ECUADOR URUGUAY	CUBA D.REPUBLI C	NIGERIA ETHIOPIA GHANA	SYRIA BURMA BANGLDES H	VIETNAM MALAYSIA	12 FOR 11.5%
2. Con-stabulary Navies			ALGERIA SOMALIA G.-BISSAU GABON GUINEA TANZANIA	IRAQ S. ARABIA S. YEMEN OMAN N. YEMEN	SINGAPOR E	12 FOR 11.5%
1. Token Navies	SURINAME GUYANA	GUATEMA BAHAMAS C. RICA T& TOBAG HAITI El SALVAD PANAMA NICARAGU HONDURA BARBADOS JAMAICA St.VINCENT St. LUCIA GENADA BELIZE St. KITTS	MOROCCO MAURITNI A SENEGAL TUNISIA ZAIRE ANGOLA SUDAN IVY. COAST CONGO MOZMBIQ KENYA CAMEROO LIBERIA MADAGAS BENIN ZANZIBAR	KUWAIT SRI LANKA U.A.E. QATAR LEBANON JORDAN BAHRAIN MALDIVES SEYCHELL	KAMPUCH BRUNEI N. GUINEA FIJI TONGA SOLOMON I	57 for 54.9%
Land-locked Navies	BOLIVIA PARAGUAY		MALAWI MALI		LAOS	5 FOR 4.8%
Region Totals	12	19	37	20	16	104 FOR 100%

SOURCE: Adapted from Morris, Expansion of Third-World Navies, pgs. 34-35.

In summary, our strategic survey of Latin America has helped to flesh out which of the nations within the hemisphere are the most powerful and also to identify those with the greatest maritime capabilities. It comes as no real surprise that the "ABC" countries of Argentina, Brazil and Chile rank at the top. However, Brazil, scored significantly higher than all of the rest. It is therefore appropriate that the United States should especially endeavor to develop stronger ties with Brazil, such as by brokering a more favorable naval relationship. In turn, the United States would find herself building the infrastructure to a stronger and more cooperative alliance within her own hemisphere; one that would better complement and support the U.S. and other existing alliances, such as NATO, against the new security challenges of the post-Cold War era.

IV. THE POTENTIAL FOR U.S.-LATIN AMERICAN ARMAMENTS COOPERATION

This study has thus far served as an indicator of where the United States should assign greater priority regarding regional interests. Having completed an analysis for a greater focus within our own hemisphere, with the assessment that Brazil is the key nation to the United States in Latin America, the discussion now moves from the conceptual dynamics of a cooperative maritime strategy to the more narrow topic of international armaments cooperation. In essence, the first part of this thesis has served as an introduction to the last part by providing a bridge between the potential for a greater cooperative military alliance between the United States and Latin America at the operational level to the consideration of the potential for a cooperative partnership at the more intimate level of research, development and production. It is this author's perception that only through the establishment of a cooperative attitude, as expressed in a revised maritime strategy, can there be a basis for support of the intensely close relationship(s) required for success in the arena of joint ventures and armaments cooperation.

An overview of arms transfers and the U.S.-Latin American relationship serves as an introduction to the topic of international arms cooperation by emphasizing the difference between Latin America as a recipient and the United States as a supplier. A discussion on the U.S. defense industrial base answers the question regarding why the U.S. is interested in researching alternatives to a total reliance on national production of armaments. We

then commence our inquiry into the potential for armaments cooperation between the United States and Latin America by a review of experiences and lessons learned in U.S. transatlantic armaments cooperation with Europe. It is interesting to note that just as our previous focus on a revised maritime strategy began in Europe so does our topic on international armaments cooperation.

A case study of Brazil describes the development of an indigenous Third-World arms industry and illustrates the emergence of a new base of armaments suppliers with which the United States needs to contend. This discussion is intended to illustrate the leap that is required to complete a metamorphosis from a recipient to a supplier and, ultimately, to a partner. Our original question regarding the potential for international armaments cooperation between the United States and Latin America can then be answered.

A. ARMS TRANSFERS

Arms transfers represent one method by which the United States promotes its national security interests, helps to fund research and the development of new technologies, and enables the use of economies of scale for the production of less expensive defense-related products. In the early twentieth century, major armaments suppliers were traditionally European, but two world wars caused enough disruption to the European industrial base to change this pattern. The United States emerged as the new leader in the production and exportation of armaments. Over the last three decades, the primary competitor the United States faced in the arms market was the Soviet

Union. A large gap existed in the volume of trade between the superpower share of the arms market and that of the secondary tier of suppliers, such as Germany, France, Italy and Great Britain. However, the dissolution of the Soviet Union has altered the size of the former Soviet Union's share of the market into the much smaller shares of its newly independent states and the United States has emerged as the clear-cut leader in the world arms market. On the other hand, competition in the market has increased over the last decade, especially with the entrance of new Third World suppliers into the world arms market. The proliferation of arms and suppliers has global ramifications that will affect U.S. security planning for the future and will certainly have long-term implications for the U.S. defense industrial base.

The United States would prefer to remain the dominant actor in the global arms transfer arena. First, a limited number of arms suppliers implies a smaller potential number of total weapons and weapons systems that may be introduced into the world. As the dominant source of a limited number of suppliers, the United States can more readily influence the dispersion of arms in type, quantity and recipient, thereby controlling the rate of proliferation. If the United States can control the transfer of arms, it is hoped that the potential for conflict, and/or conflict escalation, can be reduced. Another reason for a continued U.S. desire for domination of the arms market is that self-sufficiency is an exceedingly expensive proposition, especially as the sophistication and technological complexity of weapons grow. By monopolizing the market, the United States can defray expenses through economies of scale and through the foreign revenues that are brought in by sales. Unlike the former Soviet Union, the United States has relied mostly on private enterprise, in the belief that profit-motivated industries are more

capable of producing quality goods than public concerns. Research and development (R&D), procurement, and maintenance and service becomes much less of a burden for the taxpayer when the unit costs are lowered by volume sales overseas. Ironically, the U.S. desire to ease world tension by controlling proliferation presents a dilemma if its own defense base is reliant upon a pliant world market.

Admirable though these U.S. intentions may be, the nationalist base of many nations has been a driving factor in their acquisition of armaments. This does not mean that the U.S. imposition of values and requirements to arms transfers has not had beneficial results. Indeed, the judicious application and enforcement of U.S. arms policies, when tied to defined vital national security goals, can make a difference. Unfortunately, one cannot ensure that a friend today is a friend tomorrow. In addition, while selective transfers can help stabilize arms flow to less desirable recipients, without a monopoly on the market it is difficult to maintain control.

Indeed, an overemphasis on "U.S." values has worked against the bidding of the United States. Defense is big business, and though the United States has tried to shun the title of "merchant of death" by applying more restrictions to arms transfers, others are less willing to tie foreign policy to commercial policy by what many see as misplaced morality. The result of U.S. restraint has sometimes had the adverse effect of forming a vacuum, a void filled by the diversification of suppliers and indigenous production. This can be illustrated by a brief study of the U.S.-Latin American relationship since the 1950s.

1. US Arms Transfers Policy In Latin America

Prior to World War II, the majority of munitions and military

resources that Latin American nations desired were obtained from European nations, especially France, Germany and Great Britain. Latin American militaries also received training from European military advisors. In addition, many of the most promising Latin American military officers were sent to schools in Europe, while others were sent to act as observers. As a result, the military doctrines of many Latin American nations were a direct reflection of the European military doctrine in which they had trained.

The advent of World War II precipitated a change. Wartime Europe could no longer spare the resources it had formerly exported to places such as Latin America. On the other hand, the increased security requirements of the United States advocated that the U.S. obtain stronger ties with her hemispheric neighbors. Through the Lend-Lease Act of 1941, the transfer of arms to other nations in return for basing rights and access to strategic materials was authorized, setting the tone for the development of a collective security arrangement. It was not long before the United States had usurped Europe as the major supplier of arms and military assistance to the region of Latin America.

The basis for collective security in the Western Hemisphere was set through the establishment of the Inter-American Treaty of Reciprocal Assistance, or more simply, the Rio Treaty. Carrying over the cooperative legacy of World War II, the United States continued to be the predominant supplier of arms to Latin America in the years following the war. Clearing her left-over World War II stockpiles, the United States sold armaments to Latin America at a very inexpensive price or gave them away outright. However, it was not until the Mutual Security Act of 1951 that the United States adopted an articulate policy on arms transfers which authorized the use

of funds for collective defense in Latin America.[149]

Since the 1950s, U.S. arms transfer and security assistance policies, vis-a-vis Latin America, have changed with the prevailing beliefs and attitudes of each U.S. administration, funding priorities and the perceived threat. Reviewed in light of these parameters, the consistencies, and inconsistencies, of the U.S. relationship with Latin American nations becomes more clear. Michael Klare contends that Latin America has been the "testing ground" for America's arms policies ever since World War II. He attributes this to the perceived U.S. impression of homogeneity in Latin American states and due to their geographical proximity.[150] Although this is a rather cynical perspective of the history of United States arms transfers to the region, it does bear witness to a certain inconsistency of American policy and the character of security assistance and foreign military sales to the region. These trends fall into roughly five chronological categories that describe the phases of U.S. arms policy in Latin America from the end of World War II until the present.

From 1951 to 1960, the United States reacted to international issues from a bi-polar perspective. "Dulles and others considered Latin America to be a prime target for the Soviet conspiracy because the region was of crucial importance to the United States; George Kennan feared it was a fertile breeding ground where the Communists could 'broadcast their seeds of provocation and hatred and busily tend the plants which sprout in such vigor and profusion'."[151] The Mutual Security Act enabled funds to be used for

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[149] Michael T. Klare, American Arms Supermarket, (Austin: University of Texas Press, 1984), p. 85.

[150] Klare, American Arms Supermarket, 77.

[151] Richard H. Immerman, The CIA in Guatemala: The Foreign Policy of Intervention, (Austin: University of Texas Press, 1982), 10.

collective security in Latin America - in the name of "containment." To become eligible for these funds, Latin American nations were required to sign the Bilateral Mutual Defense Assistance Pact with the United States. In 1952, Chile, Colombia, Cuba, Ecuador, and Peru became members of the pact. In 1953, Brazil, the Dominican Republic, and Uruguay signed on. Honduras and Nicaragua signed in 1954; Guatemala and Haiti in 1955; and finally Bolivia became a member of the pact in 1958. These agreements designated the United States as the sole provider of military advisory missions. The United States began to provide the nations the type of assistance that could best combat the external threat, or invasion, that the United States envisioned the Soviets might launch in Latin America. The core of U.S. equipment transferred to Latin America was geared towards coastal defense and anti-submarine warfare (ASW).[152]

"However, the successful revolution in Cuba, as well as guerrilla insurgencies in Southeast Asia, Algeria, Colombia and Venezuela, caused U.S. policy makers to rethink their focus on an outward looking hemispheric defense."[153] President Kennedy's administration revised the U.S. arms export program to Latin America to counter guerrilla tactics. This shifted the emphasis of American exports from maritime surveillance and ASW equipment to riot control and counterinsurgency gear. Military Assistance Program (MAP) funds were made available for grant or credit-assisted sales of both this hardware and for training. Kennedy also believed that through development, Communist subversion could be deterred; so the Alliance for

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[152] Klare, American Arms Supermarket, p. 88.

[153] Paul L. Ferrari, Jeffrey W. Knopf, and Raul L. Madrid, U.S. Arms Exports: Policies and Contractors, (Washington, D.C.: Investor Responsibility Research Center Inc., 1987),163.

Progress linked counterinsurgency to socio-economic development. Robert McNamara, Kennedy's Secretary of Defense, said, "Security is development, and without development there can be no security."[154]

The United States tried to qualify what was considered an appropriate level of sophistication of weapons systems for Latin America's needs. The U.S. also tried to forestall the sale of equipment that was considered too hi-tech, and therefore "wasteful and unnecessary," because it would divert the already scarce resources of a developing nation. In 1965, for instance, the United States refused to sell F5s to Peru, who wanted to replace their aging F86's, because the U.S. did not feel that supersonic jets were either desirable or necessary in Latin America. The Peruvians short-circuited the U.S. attempt to direct their military imports by transacting a contract for Mirage V's with France, on credit. Various lobbyists on Capitol Hill began to look askance at the U.S. policy of self-restraint as a movement towards diversification of arms suppliers developed in Latin America. Argentina and Brazil also started to expand their indigenous arms industry. "U.S. restrictions on arms transfers that took effect after the mid-1960's were a contributing factor to the subsequent deterioration of U.S.-Latin American cooperation in sustaining an inter-American security system."[155]

In 1968, the U.S. Congress passed the Foreign Military Sales Act, restricting the sale of sophisticated weapons to most Third World nations. It also put a $75 million annual credit cap on military aid to Latin America, requesting that no aid be appropriated for those countries ruled by dictators.

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[154] Klare, American Arms Supermarket, 88.

[155] David Ronfeldt and Caesar Sereseres, "U.S. Arms Transfers, Diplomacy and Security in Latin America," in Arms Transfers and American Foreign Policy, ed. , Andrew J. Pierre, (New York: New York University Press,1979), 163.

The Nixon and Ford administrations, opposed to the limitations on arms and assistance, made a strong effort to counter the loss of "clients," restore goodwill, and preserve access to Latin nations by becoming more responsive to foreign requests and abolishing or circumventing restrictive legislation.[156] Congress was still not amenable to lifting restrictions. So, "While the U.S. unilaterally maintained restrictions on sales and credits..., the West Europeans sold $1.3 billion of arms between 1968 and 1972. This represented 84 percent of Latin American arms purchases (excluding Cuba)."[157]

In 1973, Peru ordered 200 T-55 tanks from the Soviet Union, but even this would not sway Congress to comply with the administration's requests to lift restrictions. On 5 June 1973, Nixon invoked Section IV of the Foreign Military Sales Act, a waiver on sophisticated weapons sales, on behalf of the "national security of the United States," enabling him to sell F5E's to Argentina, Brazil, Chile, Colombia and Venezuela. By invoking Section IV for other sales, FMS with Latin America quadrupled under Nixon. While only $48 million in Latin American sales were recorded in 1971, total sales had jumped to $212 million by 1974.[158]

The U.S. revitalization of arms transfers was short-lived as a result of an increased U.S. focus on human rights violations which questioned the morality of arms sales abroad, invoking responses from the U.S. Congress, the media and the public. The International Security Assistance and Arms Export Control Act of 1976 prohibited security assistance to those countries that had

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[156] Ronfeldt and Sereseres, "U.S. Arms Transfers, Diplomacy, and Security in Latin America," 163.

[157] Ferrari, et al., U.S. Arms Exports: Policies and Contractors, 164.

[158] Klare, American Arms Supermarket, 91-93.

systematically violated human rights and placed a ceiling on world-wide sales. It also terminated, by 1977, grant assistance and military advisory groups to many Latin American countries.[159] On 19 May 1977, President Carter announced a new policy of arms restraint. Hence, FMS sales and Security Assistance were banned to Chile, Argentina, Uruguay, and made Brazil, El Salvador, and Guatemala ineligible for Foreign Military Sales Credits. In 1980, with only $32 million in sales, weapons deliveries dropped to their lowest numbers since 1952.

The Carter administration's commitment to arms restraint soon started to falter. Exceptions were made as events such as the Nicaraguan Revolution, Cuban involvement in Angola, and European arms sales to Latin America eroded U.S. restraint.[160] In 1979, surface-to-air missiles and Vulcan anti-aircraft guns were sold to Ecuador and F5E fighters were sold to Mexico in 1980. U.S. military and economic assistance to El Salvador rose from $15 million to $55 million between 1980 and 1981.[161]

Lars Schoultz states that President Carter's administration damaged U.S. interests in Latin America as a result of its lack of consensus. The Reagan administration realized that Carter had not maintained a coherent policy and strove to simplify policy-making by "eliminating divergent policy perspectives" and "permitting only one point of view to be represented among the individuals making U.S. policy toward Latin America."[162] The

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[159] Ronfeldt and Sereseres, "U.S. Arms Transfers, Diplomacy and Security in Latin America," 132.

[160] Ferrari, et al., U.S. Arms Exports: Policies and Contractors, 165.

[161] Klare, American Arms Supermarket, 95.

[162] Lars Schoultz, National Security and United States Policy toward Latin America, (Princeton, N.J.: Princeton University Press, 1987), 9.

Reagan administration did not believe that human rights should be the centerpiece of foreign policy, but called for a more balanced and less publicly confrontational policy on human rights. "It recommended that emphasis be given to terrorism as inhuman repression and that human rights concerns not be allowed to 'paralyze or unduly delay decisions on issues where human rights concerns conflict with other vital U.S. interests'."[163]

Maintaining this perspective, President Reagan issued a directive in July 1981 that countermanded Carter's 1977 restriction on arms transfers. He declared that "the United States must, in today's world, not only strengthen its own military capabilities, but be prepared to help its friends and allies to strengthen theirs through the transfer of conventional arms and other forms of security assistance."[164] Aid and equipment were thus extended to heretofore restricted countries, often offered as a reward for improved human rights records. The arms export ban was lifted from Argentina, sales were made to Guatemala and even F-16's were sold to Venezuela. However, in 1985, 80% of all FMS agreements in Latin America were with Central American nations, a derivative of the guerrilla warfare in Central America. Emphasizing counter-insurgency hardware, the bulk of U.S. arms transfers was sent to Central America.[165] However, the attempts by the Reagan administration to regain the United States' primacy as supplier and regulator of arms to Latin America, lost during the Carter years, has been slow. A resurgence of European suppliers, along with a growing self-sufficiency of

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[163]Harold Molineu, U.S. Policy Toward Latin America: From Regionalism to Globalism, (Boulder, CO.: Westview Press, Inc. 1986), 144-145.

[164]Klare, American Arms Supermarket, 97.

[165]Ferrari, et al., U.S. Arms Exports: Policies and Contractors, 167.

local powerhouses, has prevented a complete U.S. dominance of the market.

B. U.S. DEFENSE INDUSTRIAL BASE

A global demand for arms and technology remains high, but the world-wide recession has slowed sales. The U.S., Russia, France, Britain, and China - the Big Five supplier nations - sold 44 percent less in 1991 than in 1990, down from $41.6 billion to $24.7 billion.[166] This downward trend is also a result of the demise of the Soviet Union and the end of the Cold War. Total U.S. arms transfers dropped 22 percent.[167] The recent contraction in global arms sales is probably only as temporary as the world recession, but it has certainly increased the competitiveness of the arms industry and increased economic motivations for sales.

The motivations that drive arms transfers vary from supplier to supplier. Arms transfers are both an important foreign policy tool and a commercial tool. Along a continuum, the smaller suppliers, such as Brazil, are generally more drawn to the commercial aspects of arms transfers while the more developed suppliers are relatively more concerned with the foreign policy aspects of arms transfers. Still, the developed world is increasingly drawn to arms transfers for commercial reasons. Economic pressures motivate all nations to sell arms. Foreign exchange earned through arms exports help to offset balance-of-payment deficits. Arms exports also enable longer weapons production runs, thereby relieving fixed and capital costs by reducing the burden of expenditures, such as for research and development. Longer

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[166] Mark Sommer, "Closing the Arms Bazaar," The Christian Science Monitor, (27 August, 1992), p. 18.

[167] Sommer, "Closing the Arms Bazaar," p. 18.

production runs reduce unit costs, too, so a nation can purchase its own military goods at a cheaper rate if production is not terminated immediately after national military requirements are satisfied. Thus, by reducing national defense costs, arms exports help maintain a healthy defense industrial base.[168]

While it is apparent that developed nations such as France and Britain are increasingly drawn to arms transfers for commercial reasons, U.S. motives are less clear. Arms transfers remain an important foreign policy tool for the United States, but because the United States relies on both public and private industry for its defense acquisitions it is often difficult "to draw a clear-cut distinction between the U.S. defense industrial base and the U.S. commercial manufacturing economy... For this reason, the department [of Defense] has a major stake in the state of the nation's competitive posture vis-a-vis America's major trading partners."[169]

> As a nation, we choose to acquire our military material and equipment through a privately financed, privately managed, free and non-coercive market system. In this system, privately owned assets are invested in the defense industry, with the expectation of a competitive return. The use of a for-profit industry is a deliberate choice; we believe that a free industry will do a better job of weapons development and support than would government or a nationalized (or regulated) industry.[170]

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[168] Paul Y. Hammond, et al., The Reluctant Supplier: U.S. Decisionmaking for Arms Sales, (Cambridge, MA: Oelgeschlager, Gunn & Hain, Publishers, Inc., 1985), p. 264.

[169] Robert C. McCormack, "Bolstering Defense Industrial Competitiveness Through International Cooperation," in Defense 89, (March/April,1989), 10-11.

[170] Edward Hirsch and Fred Waelchi, "Toward a Set of Guiding Principles for Defense Acquisition Management," in Defense 89, (March/April, 1989), 3.

In other words, factors such as research and development, marketing techniques, quality, volume, and price, apply equally to commercial as to defense industry needs. Therefore, the security of the United States depends not only on the vibrancy of the U.S. economy, but on the ability of its defense industries to compete in the international marketplace.

There are significant indications that the U.S. defense industrial base is not as healthy as it should be to provide for the needs of the national defense. William G. Phillips, President of the National Council for Industrial Defense, stated to the Senate Armed Services Committee that every study taken in the last ten years has pointed to an erosion of the U.S. defense industrial base, especially at the second and third-tier subcontractor levels.[171] In essence, there is concern U.S. security self-sufficiency is falling by the wayside; that the challenges of international competition, especially from those foreign industries that are subsidized, and a growing proclivity for the "internationalization" of the U.S. defense industry (the manufacturing of essential component and even end-products through subcontracting, licensing, or jointly production overseas), is causing a de industrialization of the United States. Additionally, even those industries that remain stateside often suffer from obsolete equipment, antiquated, labor-intensive practices, and poor efficiency.

1. Three Tiers of the U.S. Defense Industry

The U.S. defense industry can be broken down into three specific tiers. The top tier consists of the primary contractors, the big name weapons

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[171] Statement of William G. Phillips, in the Hearings before the Committee on Armed Services of the United States Senate, One Hundredth Congress, Second Session on S. 2355, as noted in Part 7 of the Department of Defense Authorization for Appropriations for Fiscal Year 1989: Defense Industry and Technology, (March 18,29,30; April 13,14, 1988), 280-281.

suppliers such as McDonnell Douglas, Raytheon, and Hughes. The second tier is made up of the major subcontractors that produce systems for armaments, such as their internal computers. The third tier consists of the component parts and materials suppliers. Within each tier, production may be categorized by system type, such as ship, aviation, armaments. Finally, the industry runs under either public or private ownership.

Traditionally, the U.S. government, the primary buyer of the U.S. defense industry, has bid only with primary contractors, maintaining very little direct contact with the second or third tier subcontractors. The government has relied on the theory of the competitive marketplace to rally subcontractors since, typically, 40 to 60 percent of a weapon system will be contracted out to a subcontractor.[172] However, poor oversight, lack of planning, misinterpretation, and even dependency, have created a situation today that poses grave problems for the traditional system.

The United States must retain a level of corporate knowledge and industrial capacity in "vital" areas of the defense sector that will enable the United States to assume the burdens of production in any situation of national emergency. This is easier said than done, unless structural changes to the government-defense industry relationship are incorporated to stop the erosion of the defense base and promote a revitalized industry. Erosion at the lower tiers has been the most overtly obvious, simply because the number of domestic sources are drying up and there is a greater reliance today on overseas sources.

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[172]Jacques S. Gansler, Affording Defense, Cambridge, MA: (The Massachusetts Institute of Technology Press, 1989), 247.

> The growth of the multinationals and the increasing amount of overseas production and assembly of manufactured products was spurred by a variety of reasons: Cheap labor, more convenient access to raw materials, tax advantages, construction of more efficient production facilities by the host government, easier penetration of foreign markets, and for many other reasons.[173]

These reasons include inefficient operations which are often saddled with excess capacity and a poor financial situation, primarily born by the cyclical nature of defense procurement; the obsolescence of plants and equipment (World War II vintage, in some cases); high weapons systems costs; and the unstable nature of high risk ventures. Highly technical and stringent Department of Defense military specifications are another source of friction. They not only establish performance standards but often provide specific instructions for the manufacture a product. Industry often considers these requirements obsolete or simply can not support them with existing plants and equipment. In the case of the semiconductor industry, for example, DOD requirements have driven a number of U.S. semiconductor firms out of the defense market or persuaded them "to isolate their defense businesses from the talent and technologies of their commercial operations."[174] This has resulted in the production of microcircuits which require longer lead times, cost more, and provide poorer performance and product reliability than similar commercial sector devices.

Since the defense industry is highly regulated, is dependent on the U.S. government for the procurement of most of its wares, and has such high entry and exit barriers, changes to the current structure of the defense

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[173] Phillips statement, Part 7: Defense Industry and Technology, 281.

[174] "Preserving the Technology and Production Base," Defense 92, (March/April, 1992), p. 39.

industry will most assuredly need to be initiated by the government itself. As a monopsony, the U.S. government must recognize that it can influence the future viability of the industry by the steps it takes now.

The increasing sophistication and complexity of weapon systems requires long research, development, testing and evaluation (RDT&E) lead times before production is accomplished. It is imperative that U.S. defense industry bottlenecks, created by dated and sometimes improperly applied regulations, be relieved through new regulatory legislation and the promotion of incentives that will ensure adequate profit margins for defense-related industries and suppliers at all levels.

It must be acknowledged that the defense industry is a "dual economy," with the upper being the large contractors and the lower being the subcontractors and parts suppliers. Industry regulations, policies, legislation, and procedures, as well as certain subsidies and investments, are most often directed to promote the requirements of the large contractors. The lower level is subjected to these same laws and guidelines, or even more stringent ones set by the prime contractor, and therefore struggle to adapt to the requirements that do not take into account their unique problems and priorities that differ from the upper level.

Oftentimes, while the prime contractor may profit from a favorable contract clause, or multi-year contracts, the prime contractor is seldom willing to pass any portion of the benefit on to the subcontractors. The supplier may bear extra costs and burdens for which it is not reimbursed, and receive a smaller, or non-existent, profit margin. These are but two of a multitude of unfair and/or unequal practices and circumstances to which lower tier subcontractors have been subjected. It is no wonder that many businesses in

the lower defense tiers have either gone bankrupt or chosen to market "dual use" technologies and parts, solely on the commercial side. Now, with only a few suppliers remaining in crucial segments of the defense industry, prime contractors have often been relegated to foreign supplier dependence or making parts for themselves.[175]

TABLE 19
TYPICAL U.S. FOREIGN PROCUREMENTS

ITEM	SHIP CLASS	COUNTRY
Arresting Gear Engines	CVN 68	Netherlands
Propellers	T-AGOS 1	Japan
Quiet Ball Bearings	SSN 688, SSBN 726, CG 47	Japan
Turbochargers	T-AO 187	Switzerland
Diesel Generator Sets	T-AO 187	Norway
VLS Strike Down Cranes	CG 47, DDG 51, DD 963	Sweden
Diesel Engines, Non-mag.	MCM 1, MHC 2	Italy
Air Compressors	T-AO 187	Great Britain
Power Supplies	CVN 68	Denmark
Periscope Lens Material	SSN 637, SSn 688	FDR
MK 75 Gun	FFG 7	Italy
Transmitter/Receiver AN/URC 109	LHD 1	Great Britain
Cold Drawn Seamless Tubing 4" and Above	Submarines	FDR
Crankshafts for propulsion Diesel engines	T-AO 187	FDR
Anchor Chain, 4 3/4 "	CVN 68	Sweden
Air Circuit Breakers	CG 47	Great Britain
Degaussing Systems	MCM 1	Great Britain

SOURCE: From prepared statement of VADM John W. Nyquist before the Committee on Armed Services, House of Representatives in the Hearings on National Defense Authorization Act for FY91 - HR 4739 - 101st Congress, Second Session, (Vol 101, No. 50), p. 169.

The result of this situation is multifold, but two problems stand out. The first is that unit costs go up and efficiency decreases if a prime contractor

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[175] Gansler, Affording Defense, 257-261.

has difficulty acquiring parts and components. More importantly, the lack of suppliers can create industry bottlenecks which may have critical implications during periods of crisis. While peace time manufacturing has the luxury of greater time, a national emergency that necessitates the use of defense industry "surge" production may be stymied when the prime contractors have the excess capacity, but lack the capability due to a dearth of critical parts and supplies.

Up until the 1980s, the U.S. government remained largely ignorant, or responded nonchalantly, to the deterioration of the U.S. defense base. Government, industry, and academia are now making a much more concerted effort to tackle the situation. The initial response to this problem has been industry analysis and testimony, but solid legislation and commercial inducements need to follow soon. However, while there is a consensus on the perception that there are gaps in the long-term ability of the United States to adequately produce all its defense needs through domestic industry, there is a lack of consensus on the proper strategy to overcome this problem.[176]

2. Internationalization of the Market

The growing political independence of Third World nations, greater global economic inter-dependence, and a relative decline in the influence of the superpowers has molded a new environment that requires changes in the U.S. approach to these dilemmas. The United States may have to reevaluate what the concept of "self-sufficiency" actually means and demands in today's

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[176] It should be noted that this effort differs from a "buildup," such as was the case in the Reagan years, which concentrates on force structure. Instead, emphasis lies in revamping the procedures for defense acquisition and procurement and changing the structural environment in which the U.S. defense industry currently exists.

defense strategy. At least the U.S. government now acknowledges that key distinctions must be drawn within the domestic defense industrial base, itself, and that movement toward the development of a more healthy, more self-sufficient base will entail long-term structural changes to accommodate for the different needs and desires of a multi-dimensional industry. Indeed, it has been noted that there is even a dearth of adequate numbers of new graduating scientists and engineers to fill all the requirements for technological development in the near future. Hence, the entire U.S. education system may need revamping also.

Recognizing that the U.S. defense industry is just a sub-set of the U.S. industrial economy, as a whole, and operates under a similar motive - profit - it is not so surprising that the defense industry has paralleled the growth of other businesses into the international arena. Still, it must be remembered that despite similarities of the defense market with that of the "normal" economic market, defense products are directly related to the security of the nation and cannot be lumped under the same directives. Although competition forces improvements in defense technologies and enhances industrial efficiency, national security cannot ride solely on the whims of the international marketplace; there needs to be a better balance. For example, policy decisions that place U.S. restraints on foreign military sales, such as human rights issues, may be detrimental to U.S. security if a blacklisted country, becomes the primary source of vital components, parts, or materials. Furthermore, in addition to questions of dependency, there is great consternation over the potential problems of technology transfers. It is doubtful that the trend towards the internationalization of military sales and

defense markets will abate in the near future. Thus, solutions to the security dilemma must accept this fact and use it to the best advantage for the United States.

One solution, the stockpiling of specific vital items, would take foreign suppliers out of the loop. However, even if all the necessary items could be amassed, large stockpiles of parts and components would be extremely costly and would still probably be incapable of supplying the nation for any duration under surge requirements. Another solution, nationalizing defense industries, would probably not go over well with the public, would raise defense costs, and might well produce an inferior end-product.

A more palatable alternative to nationalization would be the creation of larger public segments of the defense base in those specific areas where major requirements lie, thereby ensuring that vital components and parts always remain available. By subsidizing material readiness, a bank of corporate knowledge on existing and new technologies would be retained that might otherwise be lost to foreign sources. Still, this would entail increased costs, too, because keeping an industry "warm" for the chance requirements of national emergency is not efficient.

Considering that the issues, problems, and solutions that face prime contractors at the upper tier are different from those that face contractors at the lower tiers, it is difficult to create a coherent strategy that will accommodate everyone's interests. The primary issue at the first tier is the desire for greater "sales" of U.S. equipment overseas. The primary issue at the lower tiers is "dependence," as a result of an increasing reliance on

foreign-made parts and components for many U.S. weapons systems.[177] Some level of commercial compromise must be reached before a cost-effective, efficient solution may be derived.

Since access to and development of advanced technologies will be central to the ability of the United States to counter future threats, the U.S. must expand its supplier base. The Department of Defense (DOD) should pursue a civil-military integration to take advantage of the domestic U.S. commercial technology base. "The technology goals of defense and the civil sector are fundamentally the same. Nevertheless, defense and commercial research has often taken place along parallel paths, without taking full advantage of synergy."[178] As the U.S. defense industrial base shrinks, the development of dual-use technologies, including gas turbine engines, future generation aircraft, or even enhanced computer and micro-circuitry devices, could satisfy numerous military requirements, thus reducing the requirement for foreign sourcing.

Still, total national defense self-sufficiency is unrealistic and some level of foreign sourcing will be required. As the U.S. defense industrial base contracts, alternative sources of technology and components will still be needed to support the void left by contractors who have gone out of business or have switched to a different product line. Also, as a drop in sales dries up foreign exchange, the United States must seek alternative mechanisms to help reduce national defense costs. Citing Robert McCormack:

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[177] Gansler, Affording Defense, 268.

[178] "Preserving the Technology and Production Base," Defense 92, (March/April 1992), p. 38.

> The global nature of today's international marketplace and the realities of flattening or decreasing defense budgets dictate a more interdependent and streamlined approach to how and what we buy, with other nations participating in a greater share of development and production. At the same time, DOD must do whatever is appropriate to enhance U.S. industry's ability to sell abroad -- the revenues generated from such transactions can provide stimulus for greater investment in the industrial base and help lower acquisition costs.[179]

An avenue that has been used more by foreign governments than by the United States is international armaments cooperation. Accepting the precept that the United States does not have all of the resources necessary to meet all its national security needs, further cooperation with allies offers several benefits. It would reduce the duplication of development efforts; it would promote standardization and interoperability among U.S. and allied forces; and it would help achieve more efficient, cost-effective economies of scale in the acquisition and logistic cycles.[180] Additionally, it would enable greater U.S. influence in the current level and direction of arms proliferation. Greater U.S. access to developing Third World arms markets through cooperative agreements would more effectively tie independent-minded nations into positive, long-term relationships with the United States.

While a two-way street needs to be developed so that cooperation is in the mutual interest of signatory parties, the United States must take the opportunity to maximize the development and exploitation of dual-use technologies created by other nations. In sum, the growth of indigenous arms

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[179] McCormack, Defense 89, 11.

[180] Statement of Robert B. Costello, Under Secretary of Defense for Acquisition, in the Hearings before the Committee on Armed Services, One Hundredth Congress, Second Session, on S.2335, as noted in Part 7 of the Department of Defense Authorization for Appropriations for Fiscal Year 1989: Defense Industry and Technology, (March 18, 29, 30; April 13,14,1988), 187.

industries, a diversification of suppliers, the contraction of the U.S. defense budget and a decline in U.S. arms transfers pose vexing problems for the U. S. defense industry. In reconciling these problems, the United States could use international arms cooperation both as a foreign policy tool, to rekindle its relationship with countries like Brazil, and as a commercial tool, to help bolster the U.S. defense industrial base.

C. INTERNATIONAL ARMS COOPERATION

There is an increasing emphasis on international arms cooperation as a means to attain bilateral and multilateral defense requirements. A number of factors are driving the growth of international armaments cooperation, and indications suggest that the United States, itself, will become more deeply involved in such ventures, especially with those that may be considered a "two-way street." To date, the United States has limited the majority of its cooperative armaments projects to the developed nations within the North Atlantic Treaty Organization (NATO). However, the United States is now in the process of expanding cooperative ventures beyond Western Europe, as evidenced by negotiations with Japan over the development of the FSX aircraft.

An area that has been given less consideration, but which may hold promise for the near future, lies in armaments cooperation with allied developing and newly industrialized countries. The most current example of this kind of relationship is in the development of the FX aircraft in Korea. Little serious consideration has been given to cooperative armaments agreements with developing nations in the past because of large structural

differences in capacities for research and development, testing and evaluation, and production requirements and capabilities between the United States and developing nations. While a quantum difference on these issues still exists, a maturing technological and defense industrial base in key developing countries, such as Brazil, indicates that new opportunities for U.S. armaments cooperation exists in areas of the Third World. The purpose of this chapter is to identify the U.S. rationale, objectives and requirements for international armaments cooperation - as applied to the developed world and to draw out some basic factors which seem to "condition" the probability of whether or not a teaming arrangement will be successful. From these conclusions, an assessment can be made about the applicability of these same factors to the developing world.

1. Overview

What is international arms cooperation? A number of terms are used in the arms trade and are often associated as synonymous with the concept, including - Defense Industrial Cooperation, Reciprocal Defense Procurement, and Multinational Coproduction - but most of these terms only describe facets of international arms cooperation. International Arms Cooperation is the all-encompassing title used to represent the broad collection of concepts, initiatives, and programs which make up the cooperative trade environment. Indeed, international arms cooperation may take a variety of forms, ranging from the simple exchange of information through scientific and technical visits to the complexities involved in the codevelopment of new weapon systems. In essence, international arms cooperation is used to describe any

cooperative agreement between governments and industry, either bilateral or multilateral, which involves the transfer of military-related articles.[181]

International arms cooperation can take a variety of forms, but cooperative weapons development and production programs are usually grouped under the general categories of licensed production, coproduction, and codevelopment. Licensed production is the transfer of the production rights and the data package(s) for a given product to a purchaser. It is usually regarded as the cheapest method for weapons procurement, next to the outright purchase of arms, since - for an established fee - licensed production offers a recipient the advantage of by-passing the expensive developmental costs normally associated with the indigenous production of a product. Increasingly more common, coproduction is the pooling of resources by two or more nations to produce a weapon that has already been developed by one nation or more nations. Coproduction usually enables longer production runs. This is an especially important advantage in the procurement of high-cost weapons that might otherwise be unaffordable for nations with smaller scale economies. Finally, codevelopment is the joint design and development of a weapon system. By nature, it is far more complex and risky than the other forms of cooperation because it requires a great deal of compromise, both on common weapon requirements and in the distribution of costs and benefits.

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[181] John R. Hickey, "Cooperative International Arms Trade--Arms Sales of the Future," DISAM Journal, Vol. 7, No. 3 (Spring, 1985), p. 82.

Robert Foxcurran has identified eight different types of international weapons development and production systems:

> Type 1 - Licensed Production to Overseas Country. This is the oldest method of international production whereby the US, for example, licenses the data and manufacturing technique to the purchaser. This method provides employment, technology transfer, and industrial base benefits to the purchaser.
>
> Type 2 - Licensing Production to Overseas Consortium. Same as Type 1, except that rights are conveyed to a multinational consortium which has the advantages of increased production needs and established industrial base.
>
> Type 3 - Codevelopment and Coproduction Among Foreign Countries. Industry joins in both the R&D and production under a multinational management scheme. When initiated at the concept development stage, this method shares the development costs and reduces the chances of redundancy in development.
>
> Type 4 - License Production in US of Foreign System. This is the reverse of the traditional NATO country purchasing from the US. The US purchases a foreign developed system as is, or with some modifications, thus reducing developmental costs and shortening lead time.
>
> Type 5 - Transatlantic Joint Development. Similar to the joint development in Type 3 with possible follow-on joint production, this type has the same advantages of lower R&D costs and respective national industry participation.
>
> Type 6 - Bilateral Offsets. To help compensate the purchasing country for acquiring a system, the seller agrees to offset a portion of the system cost with purchases from the recipient country. These offsets can cover a wide range of categories such as financial investments, industrial goods, or military items, and even agricultural commodities. Direct offsets normally refer to the seller buying components for the end items from the purchaser, while indirect offsets refer to the seller making investments or purchases from the buyer which are not related to the end item.
>
> Type 7 - Transatlantic Joint Production and/or Systems Management by a US Led Consortium. Similar to Type 2 but the consortium managing the production is US led.
>
> Type 8 - Family of Weapons. In this program, the requirements of a number of countries are pooled for a family of weapons of a given type, for example, missiles. The development of the parts of the family are allocated to different countries or combinations of countries, thereby dividing R & D costs among separate entities, reducing duplication in R & D, and sharing the economic production benefits.[182]

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[182]Robert F. Foxcurran, "Three Decades of Multinational Collaboration for Defense

The level of arms cooperation that can be attained, or which is desirable, between participating countries depends upon a multiple of factors that includes the respective levels of industrial and technological development, goals, requirements, and budgetary constraints. Each case is created out of the unique set of factors that condition the particular cooperative endeavor. The success of a cooperative relationship will be determined by how well the circumstances, or conditions, within each participating entity intersect with those of the other participants for the desired level of cooperation.

Although U.S. involvement in cooperative international arms agreements, in one form or another, is certainly not a new development, it has only been within recent years that the United States has begun to devote greater attention to increasing the scope of that involvement. Certainly, changes in U.S. policies towards arms transfers, especially regarding cooperative ventures, are a reflection of changes in political, economic, and military-industrial factors shaping the current international and domestic environments that affect the United States.

2. Background

U.S. involvement in international arms cooperation has been an evolutionary process - from an era of greater U.S. isolation, and self-sufficiency, during the interwar period between World War I and World War II, to the increasingly interdependent and multipolar world of today. There is now a growing realization within the United States that as sectors of the U.S. defense industrial base grow increasingly internationalized, industrial

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Procurement Within the North Atlantic Alliance: A Business History." Unpublished Master's Thesis, University of Washington, 1979. Types and definitions quoted as cited by John Hickey, in "Arms Sales of the Future," DISAM Journal, pp. 84-85.

and technological self-sufficiency, especially with regard to defense, is unrealistic. Certainly, steps to slow the erosion of this process can, and are, being implemented, but the bottom line rests on the economics of the dollar. National security costs money and the extent to which the American taxpayer is willing to foot a much larger defense bill, especially when the Cold War is over, is questionable. Instead, investment in more efficient and cost-effective vehicles that help provide for U.S. defense needs will become an increasingly more popular alternative. Certainly, if the case were otherwise, the outcry over such topics as "burdensharing" would not be so loud. Therefore, U.S. involvement in international armaments cooperation will surely continue to increase.

a. Early Legislation and Policies

To set U.S. involvement in international armaments cooperation in an historical context, the stage will be arbitrarily set on 3 March 1933 when the "Buy American Act" was passed by Congress to require that goods purchased for American defense forces be purchased from American sources. It was motivated by strong labor demands during the Depression and by the desire to maintain an economically vital arms industry at home.[183] Since this law was passed, the U.S. Congress has amended and expanded the original legislation, as well as enacted other similarly protective legislation, essentially requiring the U.S. military to show that goods are neither available nor easily produced in the United States if it wishes to purchase goods from foreign sources. This legislation is still collectively referred to as the Buy American

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[183]David N. Burt, "A Framework for Evaluating Foreign Developed Defense Systems for Aquistion by the US DOD," a technical report completed for the U.S. Army at the Naval Postgraduate School, Monterey, CA, (October, 1979), p. 5.

Act, and continues to hamper efforts towards international arms cooperation, today.[184]

A subtle change in U.S. arms acquisition policies began to take shape in the post-World War II era resulting from the potential Soviet threat to the weakened state of Western Europe. The signing of the North Atlantic Treaty on April 4, 1949, was the vehicle for this change,[185] by stating in the preamble that "They [the twelve original signatories] are resolved to unite their efforts for collective defense and for the preservation of peace and security." Article 2 elaborates that the signatories "...will encourage economic collaboration between any or all of them," and Article 3 states that the objectives of the treaty will also be furthered by maintaining and developing "...their individual and collective capacity to resist armed attack."[186] Thus, the NATO alliance set the impetus for future arms cooperation.

In 1952, the Temporary Council Committee determined that the interest of NATO necessitated "...correlating production programs of major end items of equipment, including aircraft, artillery, small arms, radar and wireless sets, vehicles, ships and various types of ammunition."[187] Initial collaboration was slow. First, no master plan for international armaments cooperation existed within the alliance, nor within the individual countries themselves. The United States, for example, only recently began to draw up a

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[184]Terrell G. Covington, Keith W. Brendley, Mary E. Chenoweth, "A Review of European Arms Collaboration and Prospects for Its Expansion under the Independent European Program Group," A RAND Note, N-2638-ACQD, The RAND Corporation, (July, 1987), p. 12.

[185]Burt, "A Framework," p. 5.

[186]Henry J. Degenhardt, Treaties and Alliances of the World, Third Edition, Longman Group Limited, 1981, p. 166.

[187]NATO Information Services, Second Impression, NATO, Facts and Figures, Brussels, Belgium, 1978, p. 131, as cited by Burt, in "A Framework," p. 6.

U.S. master plan for international armaments cooperation, first revealing such a plan in its draft form before the Senate Armed Services Committee in June 1989.[188] Second, member countries had vastly different capacities for production, different attitudes towards cooperation, and different levels of trust. Third, a U.S.-backed NATO had a heavy industrial, economic and military lead over the Soviet Union. Therefore a need for greater cohesion was not recognized, so most of the NATO countries focused on their individual priorities vice that of the alliance. Finally, as Europe rebuilt the industrial base it lost during World War II, helped by the Marshall Plan, the Europeans began to again provide for their independent defense needs and reestablish their individual arms export markets.

In the 1950s, the United States supplied Europe with most of its arms, purchased through U.S. security assistance grants, thereby helping to ensure that some level of standardization was attained in NATO. However, as the European nations recovered economically and militarily, the United States shifted its emphasis from grant assistance to foreign military sales - cash. Unable to afford some of the weapon systems they desired to buy from the United States, several NATO governments entered into a number of coproduction arrangements, sharing costs and facilities, with assistance provided by the United States. This helped to expand standardization of NATO military systems and accelerate European military production through the transfer of technology.

Between 1957 and 1967, a dozen projects were instituted - with different participants in each case and varied roles played by the United States.

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[188]David Silverberg, "Defense Trade Master Plan Could Alter 'Two Way Street'," Defense News, 19 June, 1989, p. 1.

TABLE 20
FOREIGN CONTRACTORS' SHARE OF U.S. MILITARY RDT&E CONTRACTS, FYs 1965-84

Fiscal Years*	DOD Prime Contract Awards for RDT&E to Top 500 Contractors**		
	Total (US $ m.)	To Foreign Countries (US $ m.)***	Foreign Contracts as a Share of Total (per thousand)
1965	4658	6	1.4
1966	5210	10	1.9
1967	5949	13	2.1
1968	6404	...	....
1969	5910	9	1.5
1970	5368	12	2.2
1971	5449	9	1.6
1972	5742	6	1.1
1973	6185	9	1.4
1974	5708	10	1.6
1975	6191	5	0.9
1976	6768	14	2.0
1977	7758	7	0.9
1978	8520	5	0.6
1979	8378	13	1.6
1980	.....	...	....
1981	10225	49	4.7
1982	14611	20	1.4
1983	16014	18	1.1
1984	17958	22	1.2

*US FYs 1965-76 begin on 1 July of the previous year; FYs 1977-84 begin on 1 Oct. of the previous year.
**Department of Defense prime contract awards (excluding sub-contracts) greater than $10,000 ($25,000 starting with FY 1982) for RDT&E to top 500 contractors. The total value of these contracts represented 97.9-98.3 per cents of total DoD prime contract awards for RDT&E during the period FYs 1974-9.
***Contracts to US contractors abroad are not included.
SOURCE: 500 Contractors Receiving the Largest Dollar Volume of Prime Contract Awards for RDT&E, US Department of Defense, Directorate for Information Operations and Reports, Washington, DC, annual volumes for FYs 1965-79 and 1981-4; as cited in World Armaments and Disarmament, SIPRI Yearbook 1986, (New York: Oxford University Press, 1986), p. 284.

The projects which progressed beyond the initial definition included the Hawk, Atlantic, Mark-44, Sidewinder, Starfighter, Seasparrow, Bullpup, M-72, and NADGE. An important point to remember, though, is that since the United States completed the research and development for each project, the long term impact of this collaboration on the integration of the European

arms industry was not as extensive as it might have been if the R & D phase had been spread amongst all the participants.[189]

Despite these projects, resentment against U.S. dominance of the arms industry in NATO and growing indigenous capabilities had propelled NATO, by the 1970s, into a less than efficient or mutually-supporting defense entity. A multiplicity of weapons systems was considered a major weakness of NATO. The essence of the problem is captured in the following statement:

> ...there are deployed among the NATO military forces today at least 7 basic models of tanks; 23 types of combat aircraft; over 100 types of tactical missile systems; multiple guns of different caliber and a host of different types of radars--36 in NATO's navies alone. Some guns of the same caliber cannot fire the same ammunition; aircraft with diverse ordnance and fuel requirements can only rearm or refuel at certain airfields; and commanders have experienced difficulties in communications because their communication equipment is not compatible.[190]

b. A Reappraisal

Such profligate duplication, especially in the face of an increasingly capable and standardized Warsaw Pact, resulted in inefficiency and higher costs. An exponential increase in the unit cost for modern weapons prompted those, such as Thomas A. Callaghan,[191] to submit that the only real solution to reducing defense expenditures was genuine arms cooperation. Callaghan contended that the development of multiple similar systems and a

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[189]Jack N. Behrman, "Multinational Production Consortia: Lessons from NATO Experience," a report prepared for the Department of State by the Office of External Research, Bureau of Intelligence and Research, (August, 1971), p. 3.

[190]Report to the Congress by the Comptroller General of the United States, PSAD-78-2, "Standardization in NATO: Improving the Effectiveness and Economy of Mutual Defense Efforts," 1978, p. i, as cited by Burt, in "A Framework," pp. 7-8.

[191]Mr. Callaghan authored a major study on U.S. European Cooperation in Military and Civil Technology in 1974, and produced a report for the Pentagon in 1988 entitled "Pooling Allied and American resources to produce a credible, collective conventional deterrent."

concomitant reduction in the output of weapons was a form of "structural disarmament."[192] Pressures on the budget indicated that future funding problems would only continue to intensify this situation. In response to these growing problems, the United States made a call for greater rationalization, standardization, and interoperability (RSI)[193] within the NATO force structure.

Since no consensus on the value of RSI exists, accurate predictions on the ultimate savings that might be accrued out of RSI was difficult - especially since the political, economic and military advantages of greater alliance cohesion and security cannot necessarily be measured in dollar terms. Optimistic estimates for cost savings ranged from $10-15 billion. On the other hand, skeptics estimated a maximum saving of $3 billion, with a high probability of no savings at all, or perhaps even higher costs.[194] Offset agreements complicated measurement.

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[192]Thomas A. Callaghan, Jr., "Structural Disarmament: A Vengeful Phenomenon," Journal of Defense & Diplomacy, No. 9, (September, 1987), p. 28, as cited by Craig M. Brandt and Gage A. Bleakley, "International Armamemts Codevelopment: Nunn Amendment Spurs Interest in Collaboration on Weapons Development," DISAM Journal, Vol. II, No. III, (Spring, 1989), p. 106.

[193] RSI was defined by DOD Directive 2010.6, Standardization and Interoperability of Weapon Systems and Equipment within the North Atlantic Treaty Organization, as signed on March 11, 1977. Rationalization is considered "any action that increases the effectiveness of alliance forces through more efficient and effective use of defense resources committed to the alliance." [8:5] Standardization is: "the process by which member nations achieve the closest practicable cooperation among forces; the most efficient use of research, development, and production resources; and agree to adopt on the broadest possible basis the use of: (1) common or compatible operational, administrative and logistics procedures: (2) common or compatible technical procedures and criteria; (3) common, compatible or interchangeable supplies, components, weapons or equipment; and (4) common or compatible tactical doctrine with corresponding organizational compatibility." [8:5-6] Finally, interoperability is "the ability of systems, units or forces to provide services to and accept services from other systems, units or forces and to use the services so exchanged to enable them to operate effectively together." [8:6] As cited by Burt, "A Framework," p. 3.

[194]Covington, et al., "A Review of European Arms Collaboration, p. 13.

However, Public Law 94-361, Section 802, commonly referred to as the Culver-Nunn Amendment, was added by Congress to the DOD Appropriation Authorization Act in 1977. It stated:

> ...it is the policy of the United States that equipment for use of personnel of the Armed Forces of the United States stationed in Europe under the terms of the North Atlantic Treaty should be standardized or at least interoperable with the equipment of other members of the North Atlantic Treaty Organization.[195]

To ensure that the procurement of U.S. equipment met these requirements, the act required that the Secretary of Defense report to the Congress on all "offset" agreements entered into with NATO, and also report on all major systems that were not standardized nor interoperable amongst the NATO members. In addition, to encourage licensing and coproduction agreements, this legislation explicitly provided that the Secretary of Defense could, when in the best interests of the United States, waive the Buy American Act.

The enactment of the Culver-Nunn amendment was merely the reinforcement of long-time NATO goals. The Secretary of Defense, for example, actually possessed the authority to waive the Buy American Act prior to Culver-Nunn. However, it has been suggested that this legislation served to advertise renewed U.S. intentions to bolster the effectiveness and efficiency of the alliance.[196] In 1978, U.S. goals for greater armaments collaboration was listed by the Defense Science Board:

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[195] United States Public Law 94-361, July 14, 1976, Section 802 (a) (1), as cited by Hickey in "Arms Sales of the Future," p. 83.

[196] Covington, et al., "A Review of European Arms Collaboration," p. 14.

* To improve NATO operational effectiveness.

* To increase efficiency in the allocation of alliance-wide resources for research, development and acquisition.

* To strengthen NATO cohesiveness.

* To encourage a politically stable and economically strong Western Europe and European defense industry.[197]

Thus, by the late-1970s, RSI had become the central objective of the international cooperative arms trade.

In an attempt to implement the goals noted by the 1978 Defense Science Board with the other member states of NATO, Australia, New Zealand and Japan, the United States followed a triad of initiatives. The first initiative was to identify families-of-weapons and assign developmental responsibilities to particular countries.[198] Second, general Memoranda of Understanding, or MOUs, would be developed between the member

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[197]Defense Science Board, 1978 Study on "Achieving Improved NATO Effectiveness Through Armament Collaboration," Summary, p. 8, as cited by Hickey, in "Arms Sales of the Future," p. 83.

[198]The family-of-weapons concept was designed to reduce duplication in research and development, reduce incompatibility amongst weapon systems, and reduce the number of competing weapons systems within the NATO alliance. The concept posed, and continues to pose, several theoretical, if not practical, advantages: First, since the concept is based upon independent development of specifically assigned weapons sets, this initial phase would avoid the protectionist backlash that sometimes occurs in codevelopment projects when money and/or jobs are transported abroad. Second, developed products can be put up for direct purchase by member countries or introduced for coproduction. Requirements of member countries are delayed until otherwise stipulated in the production phase, enabling less rigid development restrictions and postponing controversial decisions. Third, the family-of-weapons concept allows fuller involvement by participating members and avoids the problems associated with domination by a single country, at least in the development stage. Disadvantages include the fact that by delaying the controversial decision of member "requirements" until after the development stage could make design changes prohibitively costly during the production phase. The possiblity also exists that it might simply be impossible to accommodate drastic changes in requirements under the original design. This implies that a high level of trust must exist between members that the weapons developed by another country will meet their design expectations. Covington, et al., "A Review of European Arms Collaboration," pp. 15-17.

countries.[199] Third, agreements for coproduction of weapon systems already at, or near, the development stage would then be negotiated.[200]

The triad of initiatives has fallen short of expected goals. This is due largely to problems with the family-of-weapons. The major difficulty is that the weapons considered suitable for development under the "family" concept are limited. The only group that is actually in the development stage, thus far, is missiles. The United States, for example, has taken the lead in developing the medium-range air-to-air missile (AMRAAM) and a European consortium has taken the lead in developing the short-range version (ASRAAM).[201] Although a final verdict on the family-of-weapons concept is yet to be made, the RAND study concludes:

> In sum, although the triad of initiatives provides the framework for such forms of collaboration as coproduction and licensed production, it offers little guidance. Nor has it produced the hoped for results, and one may argue that it was never fully implemented as U.S. policy.[202]

c. Legislation of the 1980s

Within the last few years, support for international armaments cooperation has increased in the United States. New legislative initiatives have expanded the prospects for greater U.S. involvement in cooperative schemes. The passing of the Nunn-Roth-Warner Amendment to the FY-86 National Defense Authorization Bill, Public Law 99-145, (better known as the

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[199] MOUs are agreements between the U.S. Department of Defense and foreign government(s) regarding a specific area of defense of reciprocal interest. A general MOU is usually a bilateral agreement that allows broad coverage over various phases of cooperation, such as research, development and production that would otherwise require separate MOUs.

[200] Hickey, "Arms Sales of the Future," p. 83.

[201] Hickey, "Arms Sales of the Future," p. 85.

[202] Covington, et al., "A Review of European Arms Collaboration," p. 16.

Nunn Amendment), represents the bellwether legislation of the 1980s for cooperative programs. This amendment provided that $125 million be appropriated for cooperative development programs between the U.S. and its NATO allies. This included a $25 million authorization for side-by-side testing of European weapons systems to promote U.S. licensed production or purchase of European designed military equipment. To continue these initiatives, an additional $190 million was approved by Congress for FY-87. [203]

A new requirement was established for the Department of Defense to assess the opportunities for international cooperation for major defense programs at each formal development milestone. The Nunn legislation was extended to major non-NATO allies by an amendment to the FY-87 Defense Authorization Act. This list now includes Australia, Japan, the Republic of South Korea, Israel and Egypt, and is reviewed annually by the Department of Defense.[204]

Although it does not present a detailed U.S. policy for collaboration, the Nunn amendment was designed to increase collaboration between the United States and its allies at the research phase.[205] This legislation stands in contrast to historical practice in the United States. An examination of U.S. military research contracts between 1965 and 1984, for example, revealed that less than 2 out of every 1000 dollars was awarded to foreign contractors. If

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[203] Public Law 99-145, Sec. 1102, Laws of the 99th Congress--1st Session, pp. 712-715, as cited by Covington, et al., "A Review of European Arms Collaboration," pp. 17-18.

[204] FY 1987 Defense Authorization Act, Section 1105, entitled: Cooperative Research and Development with Major Non-NATO Allies, as cited by Richard Kwatnoski, "Educational Initiatives in International Armaments Cooperation by the Defense Systems Management College," in DISAM Journal, Vol. II, No. III, (Spring, 1989), p. 115.

[205] David Harvey, "NATO R&D Plan Struggling," Defense Science, Vol. 8, No. 9, (October, 1989), p. 68.

Canada is excluded from this list, the number of awards contracted abroad dropped to less than 1 of every 1000 dollars.[206] Certainly, funding provides an additional incentive to attract program managers who might otherwise never have considered collaborative research.

> The Nunn Amendment has given impetus and visibility to U.S. efforts to collaborate in arms development with its NATO allies and is an unequivocal endorsement of armaments cooperation as the method of achieving equipment modernization within NATO while providing equitable burden sharing.[207]

In 1985, two other separate pieces of legislation related to the Nunn Amendment, collectively known as the Quayle Amendment, amended the Arms Export Control Act to foster cooperative projects - especially in the production phase. The Quayle Amendment allows the Secretary of Defense to waiver U.S. contracting law in favor of a NATO partner's contracting procedures and designated subcontractors for the furtherance of a cooperative project in proper circumstances. This amendment was also subsequently extended to favored nations beyond NATO.[208]

Support for cooperative programs continues. In his Annual Report to the Congress, former Secretary of Defense Frank C. Carlucci stated that U.S. investment in armaments cooperation would steadily grow in an effort to increase the affordability of research, development, production, and logistics

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[206] SIPRI Yearbook 1986, p. 283 and 284.

[207] Brandt and Bleakley, "International Armaments Codevelopment," p. 106.

[208] Public Law 99-83, Section 115, Amendment to the Arms Export Control Act, entitled: North Atlantic Treaty Organization Cooperative Projects, 1985; Public Law 99-145, Section 1102, FY 1986 DOD Authorization Act, entitled: Acquisition of Defense Equipment Under North Atlantic Treaty Organization Cooperative Projects; and , Public Law 99-661, Section 1103, FY 1987 Defense Authorization Act entitled: Cooperative Projects, as cited by Richard Kwatnoski, "Educational Initiatives in International Armaments Cooperation by the Defense Systems Management College," DISAM Journal, Vol. II, No. III (Spring, 1989), p. 115.

programs. By the year 2000, the Department of Defense expects investment in cooperative research, development, testing and evaluation to have increased from the current 3 percent level to 25 percent. As the Report states:

> International industrial teaming arrangements involving U.S. and allied industry provide opportunities to bolster U.S. industrial competitiveness. Given current fiscal realities, it is imperative that we optimize the combined strengths of our industrial and technological base to keep it robust and fully capable.[209]

TABLE 21
NUNN AMENDMENT PROJECTS

PROJECTS	PARTICIPANTS
Ada Project Support Environments	US CA UK FR FRG NL DK NO IT
155 Autonomous Precision Guided Munition	US CA FR FRG NL SP IT TU
Modular Standoff Weapon	US UK FRG SP IT
Multifunctional Info Distribution System	US CA UK FR FRG NO SP IT
NATO Identification System	US UK FR FRG IT
Airborne Radar Demonstration System	US UK FR
Adv. Short Takeoff/Vertical Landing Tech.	US UK
Enhanced Fighter Maneuverability Aircraft	US FRG
NATO Frigate Replacement -- 1990s	US CA UK FR FRG NL SP IT
Post 2000 Tactical Area Communications	US CA UK FR NL IT
Hawk Mobility Enhancement	US NL
NATO Anti-Air Warfare System	US CA UK FRG NL SP
Battlefield Info Collection And Exploitation	US UK
Agile Falcon/F-16 Upgrade	US BE
LINK-11 Improvements	US CA UK FR FRG NL SP IT
Surface Ship Torpedo Defense	US UK
RPV Multimission Optronic Stabilized Payload	US Israel

SOURCE: Report of the Secretary of Defense, Frank C. Carlucci, to the Congress on the FY 1990/1991 Biennial Budget and FY 1990-94 Defense Programs, (January 17, 1989), p. 70.

The potential for developing a genuine "two-way street" within NATO is

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[209] Report of the Secretary of Defense, Frank C. Carlucci, to the Congress on the FY 1990/FY 1991 Biennial Budget and FY 1990-1994 Defense Programs, January 17, 1989, p. 68.

slowly evolving. Since the enactment of the Nunn Initiative in 1985, through the NATO Cooperative Research and Development Program, armaments cooperation between the United States and its major allies has expanded greatly. The following chart indicates the breadth of this expansion by showing seventeen of the Nunn Amendment Projects, as of January 1989, with signed memoranda of understanding.

d. U.S. Objectives in Armaments Cooperation

The purpose of U.S. involvement in international cooperative acquisition programs, as it has been cited most recently, is revealed in the Secretary of Defense's FY-89 Annual Report to the Congress. The Report states that these programs "seek to focus alliance resources effectively, in order to yield significant gains in our combined conventional defense posture."[210] The following objectives are outlined as the goals that the United States seeks to achieve through international arms cooperation:

*Reduce needless duplication of research and development and prudently share the best technology among allies

*Promote commonality and interoperability among friendly forces

*Provide incentives for allies to invest in conventional force modernization and burdensharing

*Achieve economies of scale throughout the acquisition and logistic cycles

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[210] Report of the Secretary of Defense, Frank C. Carlucci, to the Congress on the FY 1990/FY 1991 Biennial Budget and FY 1990-1994 Defense Programs, January 17, 1989, p. 68.

The success of any international armaments cooperation program may best be measured by its effectiveness in meeting the criteria of the four cited objectives.

In 1984, an examination of NATO armament cooperation over the previous two decades by the Defense Science Board discovered that the ratio of success to failure was higher than what is generally recognized, but that failures are remembered for a long time. Failures cited as particular disappointments include the French-German Roland air defense missile system, the codevelopment project of the British JP 233 airfield attack system, and the curtailment of a major U.S. production program for a European system. On the other hand, success ranged across the spectrum of cooperative programs, including projects involving the European production of U.S. equipment, joint development and production programs, and the U.S. procurement of European equipment.[211]

TABLE 22
SOME SUCCESSES AND FAILURES IN NATO ARMS COLLABORATION

SUCCESSFUL		
NATO SEA SPARROW	MAG-58	CFM-56
NADGE/AEGIS	MODFLIR	ROLLING AIRFRAME MXL
AIM-9-L	HAWK/I HAWK	OTO-MELARA 76 MM GUN
AWACS	BATTERY COMPUTER	M.A.N. 10-TON TRUCK
F-16	M-113	F-104
FAILURES		
ROLAND	JP 233	MALLARD
MBT	U.S./UK VISTOL LIFT ENGINE	U.S./FRG APC

SOURCE: Report of the Defense Science Board Task Force on "Industry-to-Industry International Armaments Cooperation: Phase I - NATO Europe," Office of the Under Secretary of Defense for Research & Engineering, Washington, D.C., (June, 1983), p. 23.

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[211] Report of the Defense Science Board Task Force on "Industry-to-Industry International Armaments Cooperation: Phase I - NATO Europe," Office of the Under Secretary of Defense for Research & Engineering, Washington, D.C.,(June, 1983), p. 23.

The feasibility of increased successful armaments cooperation between the United States and allied nations depends upon a number of different interacting factors. The climate for armaments cooperation, whether on a bilateral or multilateral basis, varies with the particular political, economic, industrial, and military conditions affecting participants. Perceptions of the greater advantage, or disadvantage, of collaboration, as influenced by the relationship of that "condition" in which each potential participant finds itself and in which it views its potential partner(s), helps determine motivations for involvement in armaments cooperation. Restrictive governmental regulations and failures in previous collaborative ventures are factors which may act as impediments to greater successes.

D. LESSONS FROM NATO EXPERIENCE

If success in international armaments cooperation is measured in terms of how well a project meets the objectives under which it began, one might then ask what factors help determine the outcome of a project. Is there a set of conditions which must exist before a project may have the opportunity for success? Must the development of a cooperative arrangement follow a particular format or sequence of events? Should one style of management and operations preside? Does the size and nature of government and industry in each participating country affect the outcome? If so, to what extent?

These are all logical questions, but the answers are not so easily spelled out. Since the nature of the participants and of the conditions associated with each case change, no static formula for success exists. Projects - at all levels of

cooperation - have succeeded under an array of different management styles and techniques, sharing different distributions of power, production, investment, and other related costs and benefits. A method, or formula, that has proven particularly successful under one set of circumstances does not necessarily equate to success under another. However, a cooperative project is like any marriage in that creativity, flexibility, and effort are always required, but the foundation of that relationship must be grounded in a basic compatibility of interests if it is to survive.

Since the 1950s, there has been a good deal of experience culled in international armaments cooperation - the majority of which has been derived from cooperative arrangements among NATO members. Although the family-of-weapons concept has been difficult to implement, other methods have proven more successful. West European cooperation has resulted in the joint development of the Tornado, Jaguar, and Alpha Jet aircraft, and the Euromissile projects for the Hot, Milan and Roland missiles. These ventures represent some of the best examples of truly collaborative projects. However, as the 1986 SIPRI Yearbook points out, these are all examples of West European joint development.[212] The record for transatlantic cooperation, with U.S. involvement, has been more problematic. It has seen most of its successes in coproduction programs such as the F-16, the NATO Seasparrow, and the AIM-9L. The list for successful codevelopment projects between the U.S. and Europe is much smaller, with the AV-8B and the NATO Seagnat as the two more noted examples.[213]

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[212]World Armaments and Disarmament, SIPRI Yearbook 1986, (New York: Oxford University Press, 1986), p. 283.

[213]Pauline Creasey, "Europe Defence Firms in Cooperation Agreements," in Pauline Creasey and Simon May, eds., The European Armaments Market and Procurement Cooperation, (New

Despite the failure to create a genuine two-way arms trade street between the U.S. and NATO Europe, inroads have been made to overcome some of the impediments to attaining such a level of cooperation. In contrast to earlier U.S. experiences in armaments cooperation, technology transfers have increasingly become a two-way street. Among some of the cooperative allied contributions are:

TABLE 23
COOPERATIVE ALLIED CONTRIBUTIONS

NATION	ITEM/TECHNOLOGY	VALUE TO US NAVY
UK	Versatile exercise mine	Mine counter-measures training
France	Solid-state MAD gear	Greater operational availability and easier alignment
FRG	Zeiss optics	Improved periscope optics
Italy	Mine mechanisms	Counter multi-influence sweeping
Norway	IR missile seeker	Helicopter standoff attack capability (SSM/ASM)
Japan	Kikosan missile	Learn how to produce low cost, "high tech" weapon

SOURCE: "Briefing Book for International Cooperative Research, Development & Acquisition Activities," U.S. Navy, OP-098F, 1986.

It is instructive to note that not only has success been reached in NATO transatlantic cooperative projects, but that failure has also been recorded in Europe-only projects. Success in international arms cooperation is therefore not necessarily limited by geographic proximity nor by the relative size of the defense industrial base of the participating states - although these factors certainly help to define the character of a cooperative project.

York: St. Martin's Press, 1988), p. 93, as cited by Brandt and Bleakley, in "International Armaments Codevelopment," p. 106.

In 1971, a U.S. Department of State study to examine multi-national consortia under NATO was concluded. The study's objective was to find clues to how cooperative efforts might be applicable to non-military areas. The study is appropriate to the context of this chapter because an in-depth analysis of five early NATO co-production projects was made. In its findings, based on an examination of the Hawk, Starfighter, Sidewinder, NADGE, and the Seasparrow projects, the study outlined the criteria necessary for the development of successful cooperative projects. Since many of the basic precepts of the study's conclusions remain valid, today, it provides a framework from whence contemporary cooperative international armaments arrangements can be examined.

According to the man who conducted the study, Jack Behrman, the major lesson to be learned from NATO cooperative armaments programs is that despite intense national interests, governments can and will cooperate when it is clearly to their benefit to do so. However, he also states that they will do so only if that benefit is commensurate with their contribution. By trying to dovetail national interests with economic means and demands, the central problem of any cooperative project becomes a political one.[214] It is significant to note, therefore, that once an agreement on sharing criteria is reached, governments will remove many of the impediments to cooperation, such as barriers to the movement of goods or components.[215]

Early experience with NATO indicates that the foundation for successful cooperation lies upon several requirements. The following prerequisites must be fulfilled before a cooperative project will ever get off the ground: 1)

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[214] Behrman, "Multinational Production Consortia," p.5.
[215] Behrman, "Multinational Production Consortia," p. 30.

partners must have a knowledge of the techniques available for cooperation; 2) they must have a will to use them; and 3) they must have a sufficiently high priority to warrant a cooperative agreement. It is this third prerequisite which may dictate whether or not a potential partner ever reaches the negotiating table.

Four conditions must exist if a sufficiently high priority is ever to be developed. 1) A government must recognize a need for a defined program - one that may be met by a cooperative project. Generally, this need is strongest under conditions of war but weakens as the state of duress decreases and/or nationalism and independence increases. 2) Participants must recognize an inability to "go it alone," either for circumstances of politics or of economics. 3) A mutuality of national interests must exist between participants, backed by a willingness to commit adequate resources to a sufficient degree to give the problem a priority. However, it should also be noted that interests need not be identical, since some diversity of interest helps in the delegation of roles within a project. 4) Since failures are as often individual as institutional in the area of international cooperation, the presence of talented and dedicated individuals, with strong management capabilities, is needed to accomplish tasks and resolve conflicts. Without these conditions, cooperative efforts are unlikely to be adopted or successful.[216]

Motivations for cooperation vary considerably with the players, but are generally precipitated by political, economic, and/or social reasons. Economic considerations are playing an increasingly dominant role in determining

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[216]Behrman, "Multinational Production Consortia," pp. 22-24.

motivations, both in the United States and Europe, as well as in other arms producing countries. The less arms that a government purchases for domestic consumption, the greater the need to export in order to support the domestic defense industrial base.

Although positions on the relative merits of U.S. involvement in armaments cooperation may vary within the various departments and agencies of the U.S. government that influence decision-making on arms transfers, a general consensus does seem to exist on what U.S. objectives should be for arms cooperation.[217] The motivations of foreign governments for international armaments cooperation have much in common with those of the U.S. government's. These motivations include a desire for a more efficient military alliance, higher employment opportunities, a positive balance of trade, an improved national technology base, and a desire to ensure the continued viability of their national defense industries.[218]

International arms cooperation from industry's perspective also varies with the player, but interest is generally associated with the bottom line - building a profit. A review of foreign industry motivations for involvement with the U.S. indicate that they are interested in cooperation for two major reasons. The first is that cooperation with the United States opens the doors to a large, new market. Second, access to U.S. technology can be used to improve the capability and quality of their goods, thereby increasing the marketability of their products for third-country sales. U.S. industry also recognizes some of the advantages international cooperation may provide for

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[217] As noted during numerous interviews with different agencies in Washington, D.C., July, 1989.

[218] Defense Science Board Task Force, "Phase I - NATO Europe," p. 15.

business, including a possible expansion of available markets, an opportunity to further spread the costs of investments in R&D, and a method to help overcome offset requirements. However, U.S. industry does express concern about the long-term effects of cooperation - what will be the effect of engendering future foreign competition through technology transfers?[219]

Since the nature of national security ties defense-related industries very closely to government, international armaments cooperation cannot be successful without the consent and the compliance of the other. This point was made very clear in opening statements at the International Industry-to-Industry Armaments Cooperation Meeting in Brussels, on 18 October 1982. "In Europe, cooperation of industry implies government cooperation. Industry cannot cooperate without government."[220] In elaboration, during more informal discussions it was noted that while industry-to-industry cooperation is essential to the achievement of government objectives for international arms cooperation, it is insufficient by itself. Government involvement is needed to define and harmonize requirements as well as to provide funding.[221] The recognition of a genuine need, combined with shared common requirements, for a clearly defined product is the key to success in international armaments cooperation.

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[219] Defense Science Board Task Force, "Phase I - NATO Europe," p. 16.

[220] Memorandum from the Office of the Under Secretary of Defense on the International Industry-to-Industry Armaments Cooperation Meeting on 18-21 October 1982 in Brussels, Belgium. Signed by Gerald Sullivan, Executive Secretary, Defense Science Board Task Force on Armaments Cooperation, (Washington, D.C., 8 December, 1982), p. 3.

[221] Memorandum, Industry-to-Industry Arms Cooperation Meeting, pp. 3-4.

However, arriving at a well-defined product is not an easy task. First, perceptions of a threat must be similar enough to trigger a collective response. Second, strong agreement must be obtained upon the basic military requirements. Unfortunately, mutual agreement is one of the most contentious issues preceding cooperation.[222] Even when there is common agreement on the threat to be countered, the process of selecting the weapon type and the capabilities desired for that system can still be difficult.

An inability to agree on the basic military requirements early in the process tends to foster the growth of independent national programs.[223] This was an early experience in NATO. Co-production arrangements were prevented because an initial alliance requirement stipulated that consensus exist amongst all members. However, getting unanimity on common procurement objectives between fourteen different nations was all but impossible. It was not until after a resolution was passed enabling NATO members to join together in smaller groups of two or more that any real consensus could be derived.[224] The lesson learned was that projects should be limited to only those nations bearing a similar definition of the problem.

The design of the system to be produced is the next logical step in cooperation. Simply, design defines the product. It is a function of numerous factors, including: the definition of the problem; the technology available; the projected cost of the technology desired; the production capability and limitations of each participant; and the analysis and politics of cost/benefit.

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[222] Covington, et al., "A Review of European Arms Collaboration," p. 9.

[223] Defense Science Board Task Force, "Phase I - NATO Europe," p. 20.

[224] Resolution on the peaceful settlement of disputes between NATO members. NATO Council, Ministerial Session, Paris, Dec. 14, 1956. As cited by Behrman, "Multinational Production Consortia," p. 8.

Since the industrial, technological, economic, and financial makeup of each country is different, design tends to determine who will have comparative advantage in development and/or production of the product, who is to have predominant control of the project, who is to gain certain benefits of the system and how much, who will be able to bid on its production, and who will use it.[225] As a result, design also influences who participates in the joint effort. Certain partners may decide to bow out. Obviously, changes in the composition of the participants could alter the nature of the cooperative arrangement. Therefore, the design chosen to fulfill a particular set of military requirements also determines the context of a project. The type of project and the character of participant members are likely to be the principal determinants of the organizational and management structure of the venture.

1. Efficiency Versus Equity

At this point it is important to briefly comment on the structure of a cooperative arrangement. It must first be stated that there is no best cooperative arrangement. Both structured and ad hoc cooperative arrangements have been successful. Second, no set pattern (organizational, financial, or otherwise), is necessarily best for any one type of cooperative project. Third, government participation has been an essential aspect of cooperation in the past, especially at the national level, because international arrangements involve political and economic decisions that often impact the national interest.

Defining the "appropriate" level of government involvement is

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[225] Behrman, Multinational Production Consortia, pp. 8-9.

contentious. In Europe, many governments value government-to-government arrangements far more than industrial arrangements.[226] The European view of U.S.-European industry-to-industry cooperation has generally been sceptical because of a belief that such endeavors favor U.S. companies, noting that since U.S. companies are generally larger than European ones, they therefore tend to dominate any partnership.[227]

On the other hand, the experience of the Defense Task Board is that "cooperative programs are generally more successful if the cooperation is defined and implemented at the industrial level and through direct industry-to-industry arrangements."[228] Government involvement may no longer even be a requirement under certain cases. This is born out by a new type of transatlantic arms cooperation between U.S. and European companies that have begun teaming together in the bidding for contracts without any government involvement.[229]

Defining the structure and operation of an arrangement requires agreement in numerous areas. Resolving the problems of threat definition, system design, and governments that will participate crosses a large hurdle towards setting the parameters of a program, but a host of other important factors must also be considered. With no one aspect of higher priority than the other, a laundry list of these other considerations would include the following: procedures for bidding and procurement, financial commitments, impacts on balance of payments, allocation of production and sales, selection

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[226] Covington, et al., "A Review of European Arms Collaboration," p. 19.
[227] SIPRI Yearbook 1986, p. 286.
[228] Defense Science Board Task Force, "Phase I - NATO Europe," p. 17.
[229] SIPRI Yearbook 1986, p. 286.

of companies to participate, pricing and costing procedures, organization and management, transfer of technology, taxes and duties, legal aspects (proprietary rights, termination, accession of new members, arbitration of disputes, liquidation of the arrangement), and provisions to dovetail the arrangement with other moves toward international integration

Decisions on the factors noted above will influence the roles each participant will play, the burdens they will bear, as well as the benefits they may derive. In the process of negotiation, businesses will generally seek solutions that follow the path of maximum efficiency. On the other hand, governments, hoping to raise national benefits and reduce national costs, tend to seek solutions that will equitably distribute the costs and benefits of cooperation.[230] Without discussing the methods of implementation, let it suffice to say that this objective is usually accomplished by establishing sharing criteria that specifically stipulate the financial commitments of each country, outline the payment impacts they are to sustain, allocate production assignments among the participants, and select the companies to receive technological inputs.

The simultaneous desire for both efficiency and equity creates an interesting dilemma. If efficiency is defined in terms of finding the "least cost" approach to cooperation, and equity is defined in terms of "sharing the benefits" of cooperation, then efforts to incorporate greater equity in a project will reduce the benefits that may otherwise be derived through specialization. Thus, a reduction in efficiency increases the costs of equity(See Figure I).[231]

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[230] Behrman, "Multinational Production Consortia," p. 26.
[231] Behrman, "Multinational Production Consortia," p. 2.

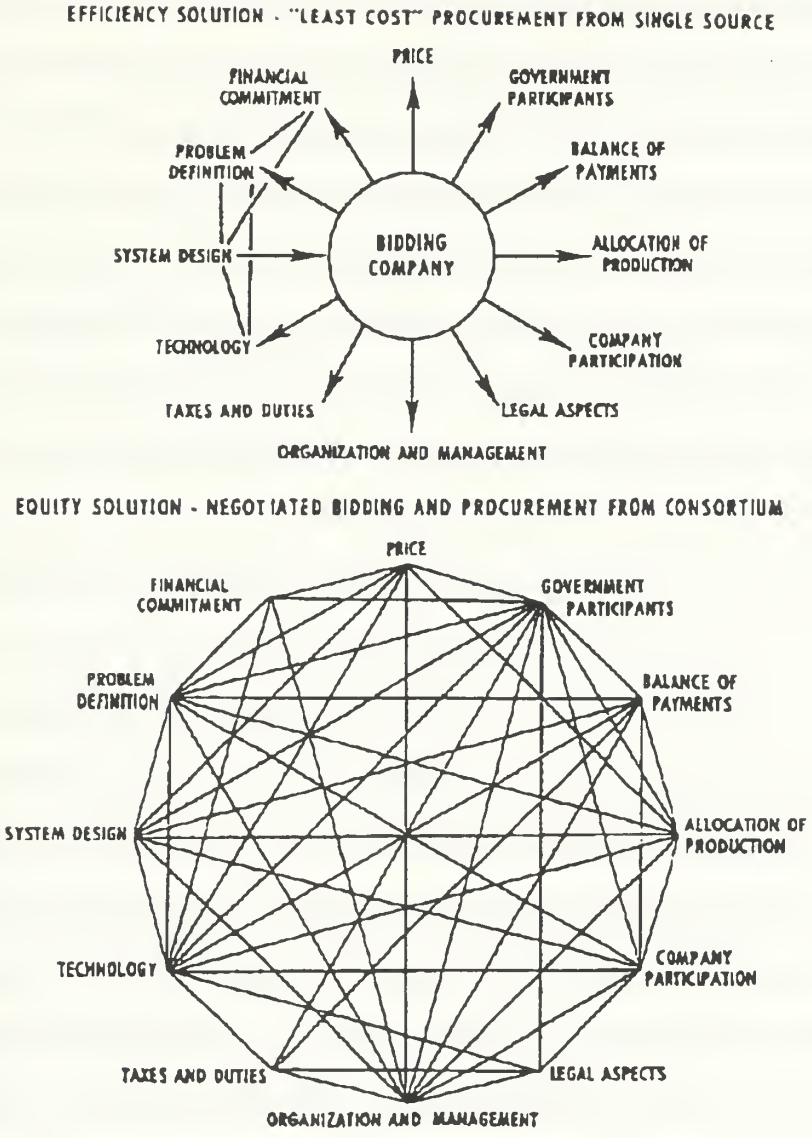

FIGURE 1
DECISION-MAKING: EFFICIENCY VERSUS EQUITY
(Source: Behrman, "Multinational Production Consortia," p. 7)

Identified as ideal types, a diagram illustrates the relative simplicity of

decision-making in the efficiency solution as compared to the much more complex nature of the equity solution . The same basic factors influence the structure and operation of a project handled under either the efficiency or the equity solution. However, in the case of "least cost" procurement, only twenty-two separate decisions are required. Related to the system design, and influenced by the problem definition, financial commitments, and the technology to be used, fourteen of these decisions are made by governments. The rest are made by the contractor and presented to the government for a price. By contrast, the equity solution involves sixty-eight two-way relationships in its simplest form. Governments must make a determination over all these factors, with or without simultaneous negotiation with private bidding consortia.[232]

Under either solution, the complexity of the decision-making process increases with the addition of each extra participant, but this is especially obvious in the case for equity. Since each country is generally concerned with obtaining the maximum benefits that may be derived from a cooperative program, careful attention is given to negotiating program guidelines. Thus, when more than two or three nations get involved in a program the potential for difficulty increases significantly. A case in point was the Tornado program. Extensive disagreements over its mission and design resulted in an aircraft which has not been an export success.[233]

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[232] Behrman, "Multinational Production Consortia," p. 6.

[233] J. Stewart Schwartz, "NATO Arms Cooperation, Technology Transfer, and the National Interest." (8 December, 1988), p. 9. Unpublished working paper in files of author.

The friction in the relationship between efficiency and equity is a real one. While some accommodation between efficiency and equity is usually made in most decisions, constructing a cooperative arrangement with a propensity towards greater efficiency or towards greater equity may dictate the relative potential for success. If one considers the inherent disparities in the size and capability of defense bases between nations, the record suggests that too great a focus on equity between disparate participants will foster greater difficulties and perhaps even failure. A RAND study states that "the U.S.-European programs that have required a fair amount of compromise, such as those involving codevelopment, have tended to fail."[234] What is significant is that there has been a shift away from projects dominated by one nation/company towards those with greater sharing of management responsibilities and decision-making.

E. NATO TWO-WAY STREET

European members of NATO have long complained about an imbalance in the flow of arms between Europe and the United States. Despite the proclaimed benefits of RSI, by the 1970s many West Europeans viewed the U.S. drive for standardization more as a "Buy American" advertising campaign[235] than as a legitimate U.S. concern over the high state of inefficiency to which military procurement and operation had developed within NATO. Indeed, the record for transatlantic trade tended to support this

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[234]Covington, et al., "A Review of European Arms Collaboration," p. 21.

[235]Paul Y. Hammond, David J. Louscher, Michael D. Salomone, and Norman A. Graham, The Reluctant Supplier: U.S. Decisionmaking for Arms Sales, (Cambridge, MA: Oelgeschlager, Gunn & Hain, Publishers, Inc., 1983), p. 210.

perception. Military trade ratios between the U.S. and NATO Europe were variously estimated at anywhere from 6:1 to 13:1 in the early 1970s. In fact, if one only considers major procurement items, that ratio widened to 18.5:1 in Fiscal Year 1974, even though the total "military account" financial flows were almost equal.[236]

In response to this situation, President Carter pledged to make transatlantic arms sales more of a "two-way street," on 10 May, 1977, in a speech before the North Atlantic Council. As a two-way street, not only would Europe continue to buy technology and arms from the United States, but the U.S. would make a greater effort to purchase technology and arms from Europe.[237] Indeed, cooperative armaments programs, as previously noted, were hailed as one of the primary ways to bring forth greater benefits to both sides of the Atlantic.

U.S. military exports to NATO Europe have continued to remain higher than its imports. In FY-1984, for example, the ratio of exports to imports was still 3:1. Furthermore, what is not indicated by this ratio is that a large share of the U.S. purchases from European and Canadian companies were not even major contracts, but subcontracts, which generally do not provide the type of long-term benefits the Europeans have desired, such as technology development.[238] As a result, one might well conclude that transatlantic arrangements have been more akin to a "one-way street." Apropos of this

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[236] President's Report to the Congress on Offsetting the Balance of Payments Deficit for Fiscal Year 1974 Attributable to Maintaining U.S. Forces in Europe, Washington, D.C.: Government Printing Office, May 27, 1974, as cited by Michael D. Eiland, in "The Two-Way Street in NATO Procurement," Strategic Review, Vol. V., No. 3, (Summer, 1977), p. 60.

[237] Andrew J. Pierre, The Global Politics of Arms Sales, (Princeton, N.J.: Princeton University Press, 1982), p. 34-35.

[238] SIPRI Yearbook 1986, p. 283.

situation, the concept of the two-way street might better be defined as "a downward adjustment of the ratio of U.S. sales of military equipment and services to European NATO countries to like U.S. procurement from Europe."[239]

A number of factors have been cited as barriers to the free flow of a two-way street and the dominance of American industry over the European one. Certainly, these obstacles include European domestic political, economic, and industrial constraints.[240] However, Eiland has noted two conditions pertaining to Europe which stand out.[241] First, the fragmented nature of European industry has interfered with the realization of sufficient size to create economies of scale. Second, the scale and efficiency of European research and development has been outmatched by the relatively larger and technologically superior base of the United States. This inefficient use of resources has resulted in much higher development and production costs. Thus, without greater political and industrial integration Europe "just cannot match the efficiency and productivity of the integrated and relatively competition-oriented American economy."[242]

1. European Defense Organizations

Within the last decade, major strides have been taken by the West Europeans to enhance their relative position to the United States. The desire of the Europeans to deal co-equally with the United States on security issues

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[239] Eiland, "The Two-Way Street," p. 60.

[240] An excellent individual analysis of the pressures and constraints on arms procurement and transfers within France, the United Kingdom, and West Germany is provided by Hammond, et al., in The Reluctant Supplier, pp. 213-256.

[241] Eiland, "The Two-Way Street," pp. 62-63.

[242] Eiland, "The Two-Way Street," p. 61.

and the desire to avoid total domination of their defense and aerospace industries by the U.S. resulted in the establishment of the Eurogroup and the Independent European Programme Group (IEPG). The Western European Union (WEU) is another organization which was inspired by the desire for a "European" solution to defense issues. It is not within the scope of this chapter to provide an in-depth assessment of these organizations, but a short synopsis is in order to illustrate progress made in Europe to overcome the political, economic, and industrial fragmentation that currently hampers real economies of scale and greater investment in research and development.

The WEU is a seven member organization based upon the revised Brussels Treaty of 1954. Signatories are committed to providing the maximum military assistance should any one of them be attacked.[243] In 1984, the WEU underwent a major reactivation, when for the first time in thirty years of existence the October meeting was attended by both the foreign and defense ministers of the member nations. They now meet every six months to discuss defense and security issues. Of special note, the removal of the remaining restrictions of the 1954 WEU Treaty protocols on the production of conventional weapons within West Germany has certainly made the WEU more attractive to the Germans.[244]

The Eurogroup was established in 1968 to provide a forum for joint European discussion on defense and security issues, especially those related to NATO defense planning. Eurogroup stresses practical cooperation between

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[243]"Western Defense: The European Role in NATO," (Brussels: The Eurogroup; issued by the NATO Information Service, 1988).

[244]John Roper, "European Defense Cooperation," in Catherine McArdle Kelleher and Gale A. Mattox, eds., Evolving European Defense Policies, (Lexington, MA: D.C. Heath and Company, 1987), pp. 45-46.

its twelve member countries, with technical subgroups working in the fields of training, logistics, communications, military medicine, and operational concepts.[245] In the 1970s, Eurogroup collaboration in harmonizing tactical and operational concepts and in equipment procurement and production, "marked the real beginning of a European response to U.S. dominance and the imbalance in transatlantic arms transfers."[246]

The IEPG was formed in Rome on February 2, 1976. It was established "to promote European cooperation in research and development, and production of defense equipment; to improve transatlantic armament cooperation; and to help maintain a healthy European industrial and technological defense base."[247] It is a thirteen member organization founded at the suggestion of the NATO Eurogroup Defense ministers who wanted a forum that would also include strong French participation.[248] In 1984, the Defense Ministers of the member nations took control of the IEPG.

European experience with armaments cooperation had tended to be on an ad hoc basis. Many of the products jointly produced with the United States were mainly high-cost versions of U.S. weapons systems.[249] In response to these factors, the IEPG instituted a plan to pursue the expansion of intra-European cooperation on a systematic and structured basis. In November,1988, the IEPG member ministers expressed approval of the plan, as outlined in the European Defense Industry Study (EDIS), "Towards a

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[245] "Western Defense," The Eurogroup, 1988.

[246] "The Eurogroup," (Brussels: Van Muysewinkel/The Eurogroup; issued by the NATO Information Service, 1979), as cited by Hammond, et al., The Reluctant Supplier, p. 210.

[247] "Western Defense," (The Eurogroup, 1988).

[248] Covington, et al., "A Review of European Arms Collaboration," p. v.

[249] Hammond, et al., The Reluctant Supplier, p. 212.

Stronger Europe."[250] Following the outline of the EDIS study, the Action Plan delineates three phases for the development of a European defense industrial base. Competition is the prime feature of their procurement policy. Research and technology is the second.[251]

In consonance with these goals, the opening of all-member procurement systems to other member nations is the first stage. The identification of components, systems, and sub-systems that can be developed jointly in the future is the second stage of the IEPG program. The third phase is the creation of joint programs for basic research and development. Finally, the IEPG adopted a policy to help its less industrialized members develop their own defense industries.[252] Although the focus of these goals is European, they are promoted within the purview of NATO since they contribute to rationalization, standardization, and interoperability. As John Roper points out, "if the work of the IEPG leads to a more effective use of the resources provided by the Europeans for research and development, it may also mean that European armaments become more attractive to the United States, and this could improve the balance of trade between the two sides of the Atlantic--the beginning of a two two-way street in defense sales."[253] Indeed, this may already be occurring since the Europeans have also "played a

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[250] Thomas C. Linn, "Europe 1992: Security Implications," National Defense Journal, Vol. LXXIX, No. 451, (October, 1989), p. 24.

[251] Lord Trefgarne, "European Defence Collaboration: IEPG Enters a New Phase," NATO Review, Vol. 37, No. 4, (August, 1989), p. 18.

[252] Phases described by Aviva Freudmann, "Europeanization of Weapons? EC Defense Ministries Push Joint Programs," Atlantic Trade Report, (September 16, 1989), p. 1.

[253] Roper, "European Defense Cooperation," in Evolving European Defense Policies, p. 49.

constructive part in using the opportunities for transatlantic collaboration created by the Nunn Amendment to the U.S. FY 86 Defense Authorization Act."[254]

a. The NFR-90 Project

Case in point is the NATO Frigate Replacement for the 1990s (NFR-90) Project. Although terminated in January, 1990, the NFR-90 project was conceived to address the retirement of approximately 60 frigates in the navies of the eight participating countries (United States, Canada, United Kingdom, West Germany, France, Spain, Italy and The Netherlands) during the 1990s. As one of the primary elements of the surface fleet of most NATO navies, a replacement that would meet future threats was considered vital.

One of the major motivations for the project was economic. Warships are extremely expensive to build, especially since the cost of the design, research, development and procurement of the new weapons systems onboard and the computer programs to run them can be so high. In addition, documentation, crew training, logistics and life support systems also have to be included in the total cost. By sharing the up front costs equally between the eight participating nations, it was estimated that large savings were achievable.

The NFR-90 was to be a state-of-the-art multi-mission frigate. While previous frigate designs had tended to be specialized in anti-submarine or anti-air warfare, NFR-90 was to be multi-mission capable, according to the mission requirements of the following seven categories: surveillance; protection of high value units; protection of shipping; area operations;

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[254]"Western Defense," (The Eurogroup, 1988).

support of amphibious operation; non-combat operations; and self-defense. "The differing mission requirements of the participating countries required the design of a flexible platform that could be readily modified to suit a variety of equipment and operating practices."[255]

Overall management of the project was by a steering committee that consisted of a rear admiral, or civilian equivalent, from each of the eight participating nations. An assistant steering committee consisting of captains, or civilian equivalent, from each participating nation reported to the Steering Committee. On-site management was performed by a mixture of naval officer and civil servants from each nation that were trained in naval ship and combat system design. A Supervisory Board, consisting of one executive from each of the prime contractors, designated for the project by their respective governments, oversaw the industrial side of the project. The working language was English, although French was also used at formal meetings and for documents.[256]

The frigate was to be built in each nation to a common basic design. In a unique approach to naval ship design, NFR-90 was a top-down design approach, rather than the more traditional bottom up. Major equipment, such as the engines and the generators, would be commonly procured. The underlying philosophy for acquisition was that non-recurring costs would be shared. Costs would be pro-rated, based on the number of items that each nation procured. It was intended that no nation in the project would have a trade imbalance by participating.

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[255] Roger L. Schaffer, et al., "Design of the NFR-90," Naval Engineers Journal, (March, 1991), p. 40.

[256] Schaffer, "Design of the NFR-90," p. 30.

Based on eight nations, it was estimated that a maximum savings of over 25 percent could be achieved on total acquisition cost of a largely common ship, built in collaboration, relative to a typical purely national project. As commonality decreased, so did the savings. However, the recurring cost savings per ship due to commonality is less important than the non-recurring cost savings due to collaboration.[257]

TABLE 24
VALUE OF COMMONALITY AND COLLABORATION

	Collaboration (59 ships)		No Collaboration
	Identical Ships	National Configurations	Typical National Project (6 Ships)
Recurring Cost	350	383	406
Non-Recurring Cost	18	32	92
Total Acquisition Cost	368	415	498
Relative Savings (%)	26	17	–

SOURCE: Roger L. Schaffer, et al., "Design of the NFR-90," Naval Engineers Journal, (March, 1991), p. 47.

After three nations dropped out of the project in 1989, the number of ships to be produced was dropped to 35. The design team had already completed a significant amount of work, including the establishment of the basic design of the ship, thorough study of the combat system and full estimation of the costs involved. Costs increased, but savings were still considered substantial.

Despite active support and involvement of the participating navies, the project was terminated in early 1990 for non-technical reasons. If the project had continued, it would have been the first U.S. Navy surface combatant primarily designed by an international organization and possibly the largest NATO project ever. Technically, the major accomplishment of the

[257] Schaffer, "Design of the NFR-90," p. 47.

project was a preliminary design of a technologically advanced, highly capable ship with a sound cost estimate that validated the advantages of collaboration. Non-technically, the project demonstrated that international industry can collaborate on large and complex projects. Since each former participant nation must now bear the costs and risks of the design and development of a new ship class on their own, it is unlikely that they will all be able to pursue as technologically advanced a vessel as the design of NFR-90. The advantages of an international collaboration program are real, but the risks are high. In the end, the NFR-90 project was scrapped for political reasons, but "if the project is constituted to achieve political and economic objectives along with specific military objectives," the risks of collaboration can be minimized.[258]

b. Models

Despite the impediments to greater cooperation, many of the economic barriers in Europe may be removed as a result of the Single European Act. Formally adopted and signed on February 28, 1986 by the twelve nations participating in the European Community, the Single European Act constitutes a dramatic step towards creating the type of unity that may enable greater consensus on defense issues as well. Since greater cooperation in the defense industry is seen as essential to the integration of the European economy, by amending the Treaty of Rome, which formerly prohibited the European Community from delving into matters of defense, it will enable further development of the "total" European defense base.

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[258]Schaffer, "Design of the NFR-90," p. 49.

While the Europeans wish to achieve a scale of defense research, development, and production more on a par with that of the United States, it does not necessarily mean that they should imitate all aspects of U.S. force planning, weapon selection, defense budgeting, acquisition, or maintenance of the U.S. defense industrial base. Indeed, a number of West European practices are actually far more efficient and effective than those of the U.S.. Jacques Gansler has observed that, despite significant differences between the European countries, enough similarities exist to group them into a "European model" that can then be contrasted with the "American model." Gansler suggests that there are six characteristics of the European system, each with there own lessons, which the United States would do well to emulate. They include the following:

*Strong, centralized decision-making on long-term budgets and programs as well as on procurement policy.

*Long-term (multi-year) stability in programs and budgets.

*Specification by the services of "mission" (performance) requirements rather than "weapon" (design) requirements.

*Early emphasis on cost as a design requirement and on long-term affordability" of weapon systems.

*Professionalism throughout the acquisition community.

*Explicit consideration of the industrial base in acquisition decisions and budget planning.[259]

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[259]Jacques S. Gansler, Affording Defense, (Cambridge, MA: The MIT Press, 1989), pp. 308-310.

Without probing each of these characteristics in depth, several points should be noted that differentiate the European and American models. First, a major difference between the two approaches lies in the relative roles played by the U.S. Congress and that of the European parliaments towards the defense process. Instead of an annual line-by-line review of the defense budget, for example, the European parliaments focus on a multi-year defense fiscal plan. Therefore, while they do have an annual review of the budget, the debate is over the Nth year of the budget rather than the first. This results in greater stability in resource planning.

A second difference between the two models is the way in which the defense industry is viewed. Rather than follow the more "laissez-faire" approach professed in the United States, the Europeans recognize that labor stability, R&D funding, lower-tier support, effective profits, and even international competitiveness must be maintained for these firms, if the characteristics of small quantities and high specialization can be effectively and efficiently realized in defense work. Each European country has a government organization to provide oversight of their respective defense industrial base and to ensure the price competitiveness of their markets.

A third major difference between the models lies in the organization and the process of acquisition. First, instead of leaving the entire acquisition process generally up to the desires of each military service, such as in the United States, the Europeans use the concept of a single buying agency that is organizationally independent from the military. This is intended to reduce duplication and to improve long-range planning and budgeting across all the services. While a single U.S. acquisition agency may be unrealistic, greater centralization may be more cost-effective.

Finally, the European test and evaluation program is based on close cooperation between the military, the government procurement organization and the contractor. Since a program approved by parliament is assumed to have the full backing of the government, the goal of testing is to provide for the military's needs and begin production as soon as possible. This contrasts with the U.S. system wherein testing and evaluation is used as part of the decision-making process to decide whether or not a program will continue to receive funding.

The United States seeks to achieve maximum performance in each weapon system, while the Europeans seek to minimize cost and risk to achieve acceptable performance within a limited budget. A comparative critique of U.S. and European approaches shows that both approaches achieve the objectives that they set out to realize, but that the investment and the time required may differ. In general, the Europeans produced lower cost, lower performance systems than the United States.[260]

Advantages and disadvantages can be found with both European and American practices, but the difference between the U.S. defense capacities and those of the independent European states has been the multiplier providing the United States with the edge. "In many ways the need for multi-national programs in Europe mirrors the need for multi-service programs in the United States."[261] Therefore, it may well be that if the Europeans can integrate their defense bases and learn to cooperate on the scale of the larger "European" defense industrial base, as a result of EC 92 and IEPG-type

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[260]The preceding five points of difference between the processes of the U.S. and NATO Europe are cited by Gansler in Affording Defense, pp. 301-305.

[261]Gansler, Affording Defense, (Cambridge, MA: The MIT Press, 1989), p. 305.

programs, size become less of a factor and the advantages of European practice may give Europe an edge on the United States.

2. A Review of the Lessons Learned

Thirty years of experience with collaboration in Western Europe has manifested a number of points. First, there is no static formula for success. However, there are some important factors which can "condition" the degree of success in international arms cooperation. There must first be a common perception of a threat and recognition of a genuine need for a product. That product must be clearly defined by strong, shared agreement over the basic military requirements for the product. Therefore, there must be a compatibility of interests and resources between partners. Clearly, a limited number of partners, such as in a bilateral or trilateral arrangement, is more manageable since it becomes increasingly difficult to satisfy larger numbers of partners, each with slightly different capabilities and requirements.

Most cooperative projects have involved two or three of the largest defense producers in Europe: France, Germany, Italy, and the United Kingdom. The involvement of countries with smaller defense industrial bases can complicate an arrangement since their interests and resources often differ from the larger countries, especially when one considers that it has often been difficult to arrange an equitable distribution of costs and benefits on a project-by-project basis even amongst the bigger nations. "It has proved much more difficult to involve the smaller European countries in joint projects, and they have--as the F-16 purchase by Belgium, Denmark, the

Netherlands, and Norway demonstrates--frequently found it cheaper to buy from U.S. rather than European sources."[262]

Since dovetailing national interests with economic means can be difficult, the central problem of any cooperative project is a political one. However, governments will cooperate when it is in their interest to do so. Governments are motivated by the opportunities for an improved balance of trade, higher employment, access to higher technology, the potential for an improved defense industrial base, a stronger military alliance and, of course, the need for a program which they are unable to pursue without collaboration. Therefore, governments are generally more concerned with the equitability of a project than its efficiency. This is manifested by the fact that once an equitable agreement on sharing is reached, many of the barriers to collaboration are removed. On the other hand, since strong leadership and management is required for any project to be successful, industry must be in consonance with government. Motivated by profit, industry tends to follow the path of maximum efficiency. However, industry will compromise when access to higher technology and to new markets is probable.

No set pattern or cooperative arrangement is considered best. While design defines the product, based on military requirements, the character of the participants and the project itself define the organizational and management structure of a joint venture. Most arrangements have tended to be ad hoc, although that is not always desirable. Across a range of projects a much broader framework is required for long-term multilateral military and industrial collaboration. In any case, close government-to-

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[262] Roper, "European Defense Cooperation," in Evolving European Defense Policies, p. 47.

government ties are crucial at the decision-making stages to ensure that there is a compatibility of interests between participant nations. Close industry-to-industry ties are also important for the implementation of product definition. Obviously, government and industry must cooperate at every level. It is not an easy process, but if the military objectives can be matched with the economic and political objectives, the rewards for international cooperation can be high. In an increasingly international and interdependent world, international arms cooperative programs are becoming increasingly popular, especially as defense budgets decline. The growing internationalization of defense industries demands that government and industry develop strong ties world-wide. Foreign military sales, offshore sourcing, foreign direct investment, international teaming arrangements, international cooperative programs, foreign technology developments and offsets are becoming the staple of the defense business.

Certainly, a strong domestic economy and indigenous defense industrial base reduce the requirement for such activities, but even the massive U.S. defense base is unable to support all of the needs of the U.S. military. The U.S. Department of Defense must purchase thousands of materials, parts, components and finished goods from foreign manufacturers. European governments have realized that there are no major defense equipment items they can continue to produce on a single-country basis.[263] Strong cooperative programs provide the opportunity for significant cost savings that might not otherwise be available through domestic manufacture.

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[263] Roper, "European Defense Cooperation," p. 47.

Access to new markets, technology, stronger alliance ties and a host of other benefits provide additional incentives.

Having reviewed some of the lessons of collaborative efforts in NATO, the question still remains to be answered whether the United States can or should pursue armaments cooperation in the Third World, or more specifically, in Latin America. With regard to "should" the United States pursue such arrangements in Latin America, the answer is yes, if a need for a product of mutual interest and design exists. There is no reason that the U.S. should limit cooperative opportunities to only one sector of the world. However, whether the United States "can" pursue such arrangements is more equivocal.

a. Impediments to Cooperation with the Third World

A reluctance by the armed forces of the United States to accept foreign designs, economic protectionism, and U.S. restrictions on technology transfer have been cited as some of the main reasons why U.S. experience with Europe in cooperative arms endeavors has been more modest in the past.[264] These same points especially apply to the Third World.

U.S. regulations and restrictions are a large impediment. The record on memorandums of understanding (MOU) provides an example. Since the 1950s, the United States has entered into at least 87 government-to-government MOUs. DOD Directives 2000.9 and 5530.3 offer the principal guidance related to cooperative international agreements. They specify the offices that are authorized to negotiate and approve the MOUs, but are less specific with regard to the exact criteria and procedures for this process. The

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[264] SIPRI Yearbook 1986, p. 283.

National Disclosure Policy outlines the criteria for reviewing MOUs.[265] Since NDP-1 is the document which governs the level of classification of military information and technology which may be legally transferred to each foreign nation it automatically places a cap on the type and extent of cooperation which may be extended to any particular government through an MOU.[266]

In an examination of MOUs, the 1989 GAO Report, Military Coproduction, stated that reasonable review and approval procedures had been followed in all these cases, including coordinating with the appropriate DOD and State offices, submitting legal and fiscal memorandums with draft agreements, delegating authority to negotiate and conclude the agreements, providing negotiating guidance, requiring third country transfer provisions, and ensuring that the programs were in accordance with the National Disclosure Policy or an exception or amendment to it.[267] However, NATO members were allowed more immediate entry and more extensive access into the transfer arena with the United States than most other countries.[268]

A different attitude seems to prevail for allies who are not members of "The Club." They are often treated to a more rigorous review process. In addition, administrative delays are especially prevalent in the United States. This makes attempts to create arrangements with non-NATO allies, like those in Latin America, difficult. As a result, bureaucratic and overly protective security procedures "can thwart the best intentions to cooperate"

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[265] Report to the Chairman, Subcommittee on Investigations, Committee on Armed Services, House of Representatives, Military Coproduction: U.S. Management of Programs Worldwide, GAO/NSIAD-89-117,(March 22, 1989), p. 12.

[266] Personal interview with William Withers, at the Pentagon, OP-615, 20 July, 1989, on material pertaining to technology transfers.

[267] GAO/NSIAD-89-117, p. 12.

[268] Interview, Withers, 20 July, 1989.

and cause time delays that make the technical exchanges required for industrial cooperation difficult. As one international defense consultant quipped, "its like saying 'Let me sell you this car... but first, come back in three months so that I can do the paperwork'."[269]

Obviously, another area of concern is the Buy America Act and the Arms Export Control Act. The United States will not normally set up companies to compete economically with the U.S. Transatlantic cooperation with Europe has been relatively vibrant because the arms industry in Europe is long-established and the general consensus has been that the United States was not setting up new competitors.[270] The recent development of U.S. defense industrial ties with the Asian "tigers," such as Japan and Korea, is largely based on U.S. attempts to gain access to new technologies that these newly industrialized countries have developed. On the other hand, this is not the case with Latin America, whose emerging defense industrial base still lacks the necessary know-how to indigenously produce the end-item weapons platforms that would compete with the hi-tech systems produced in the United States, such as the F-18 aircraft. Therefore, the United States is reluctant to help establish an infrastructure for such activities in Latin America.

Although Latin American defense industries have not been able to compete in the hi-tech market, a growing capability at the mid-grade technology level suggests that higher technology hurdles are being mastered

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[269]Personal Interview with John Forster of Forster & Associates: Defense Consultants, Arlington, Va., 19 July, 1989. Former defense contractor and a retired Navy Captain who has worked extensively on arms transfers problems.

[270]Personal interview with Wayne Laskofski, a civilian expert on European arms transfers who works in the Pentagon for the U.S. Defense Security Assistance Agency, Washington, D.C., 18 July, 1989.

in Latin America. Argentina's FAMA, for example, is one of five offshore aircraft manufacturers who have teamed with U.S. firms to compete for the U.S. Navy/U.S. Air Force Joint Primary Aircraft Training System (JPATS). Matched with the U.S. firm LTV, FAMA is proposing the IA-63 Pampa as its bid for a contract that would involve the procurement of nearly 800 aircraft for both the U.S. Navy and U.S. Air Force undergraduate flight training programs.[271] Another area of increasing capability is represented by Brazilian missile technology.

Still, a dearth of hi-tech end-item production capability is especially true of the naval arms industry in Latin America. Even Brazil, whose indigenous arms production capabilities are the most advanced of all Latin American states, still requires significant maturation of its latent naval arms industry before a stage can be reached where codevelopment projects might be genuinely feasible. To elaborate, Michael Moodie posited a 'seven-rung ladder' which a country might pursue before it can become fully capable of designing and manufacturing a product indigenously. These stages are noted as follows:

Stage One is the establishment of facilities for the maintenance and overhaul of weapons systems bought off-the-shelf from a major defense contractor in a traditional supplier country. An example of this would be a naval dockyard devoted to the refitting of vessels procured from a foreign prime contractor. Obviously, some training of local personnel would need to be undertaken by the contractor for the weapons system to the user.

Stage Two is the graduation to the assembly of weapons that are supplied in knock-down kit form by the established producer.

Stage Three is reached when the assembly operation is

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[271] Clay Umbach, "JPATS - USN/USAF Joint Primary Aircraft Training System," Naval Aviation News, (May/June 1992), pgs. 10-11.

complemented by a modicum of fabrication, mainly confined to simple components made under license.

Stage Four is reached when the local fabrication operation extends to the manufacture of complete assemblies and sophisticated components, including an entire weapons platform.

Stage Five is the basis of a new level of development. While local manufacture at the previous levels depended on the blueprints provided by the established foreign manufacturer, increasing familiarity with the production process enable the design and production of sub-systems which can be 'added-on' to the main weapons platform. Technologically undemanding, initial indigenously-designed add-ons require little research and development or accumulated expertise.

Stage Six is reached when incremental improvements of indigenous design transform the original design into a new weapons system. The more complex components are generally still off-the-shelf purchases or built under license. It is usual in ship-building that virtual autonomy is reached in hull design and production well in advance of an equivalent capability in engine or electronics.

Stage Seven is attained only when a defense industrial base is competent in all aspects of design and production of a dedicated weapons system.

It must be noted that a country may not necessarily adhere to these 'stages' in strict format, over-lapping stages of development and/or bypassing stages, such as in a 'turn-key' operation where a producer is contracted to provide an entire production complex, a package that will bring a user directly to licensed production.[272]

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[272] Stages of indigenous arms development from Michael Moodie, Sovereignty, Security and Arms, (Beverly Hills: Sage Publications, 1979), as cited by Daniel Todd in "Technology Transfer and Naval Construction: Part I," Naval Forces: International Forum for Maritime Power, No. V, Vol IX, (1988), pgs, 46-48.

According to the stages that Moodie depicts, naval arms development in Latin America is progressing, but it is slow. Argentina, for example, has been building Meko-class frigates and TR-1700 submarines with the Germans and Brazil has been building Niteroi/Leander-class corvettes with the British and ME-209 submarines with the Germans. However, using Moodies' hierarchy, a plateau has been reached at approximately the fifth or sixth rungs. For example, while Brazil is now capable of constructing most of its own hulls, the Brazilians must still buy many of their weapons systems elsewhere. Unless data packages can be bought which will jump-start their capabilities in naval development, a general lack of funds and a lack of high technology will hinder naval production in Latin America, thereby reducing the chance for international armaments cooperation with the United States - at least at the high end of the technology spectrum.

An area worthy of consideration is in the lower tiers of defense contracting. The loss of indigenous sources of sub-system parts, components, and systems from the U.S. defense industrial base suggest that greater access to diversified sources will make the United States less vulnerable to dependency. Therefore, the United States stands to gain from aggressively pursuing access to newly emerging, developing countries, such as in Latin America, for the inexpensive production of sub-system components rather than end items. Indeed, as the Defense Science Board has noted, "cooperation on the subsystem level is easier and more successful than cooperation on the larger weapon systems. Smaller efforts have lower visibility and attract less political attention."[273]

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[273]Memorandum from the Office of the Under Secretary of Defense on the International Industry-to-Industry Armaments Cooperation Meeting signed by Gerald Sullivan, Executive

According to the Defense Intelligence Agency's former senior political-military estimator for Latin America, David Pagni, Brazil offers the greatest potential for the cheap acquisition of manufactured parts and components in Latin America. Although unit prices are small, the potential for volume sales produces significant interest for their manufacturers. The Brazilians are therefore very interested in the coproduction of second-tier industry products and Pagni believes that the Brazilians would sign the GSOMIA agreement if the United States is willing to pursue teaming arrangements in this area.[274]

A case study on Brazil illustrates that Latin Americans excel at the production of weapons platforms and systems at the lower-end of the technology spectrum. Since the indigenous equipment devised by the Brazilians is based on military requirements their military services have established for operation in the harsh jungle and desert environments of Latin America, it is also often the most suitable for use in the types of environments in which future conflict may occur. Since, in all probability, "low intensity" warfare will continue to occur sporadically throughout the Third World, Latin American experience holds great promise for the United States in developing rewarding cooperative arrangements in this lower-tech sector of armaments production.

Secretary, Defense Science Board Task Force on Armaments Cooperation, (Washington, D.C., 8 December, 1982), p. 77.

[274]Personal interview with David Pagni, Senior Latin American Political-Military Estimator for the U.S. Defense Intelligence Agency, Washington, D.C., 18 July, 1989.

B. BRAZIL: CASE STUDY

Brazil has gained the spotlight in recent years by emerging as a Third World leader in the international arms market. Few other nations in the developing world have assumed the risks necessary to develop an indigenous arms industry, let alone an export-oriented one. Selling arms on the international market is a perilous business, generally requiring heavy investment with no guarantees of a profit. On the other hand, arms purchased off the shelf are relatively inexpensive. Brazil, however, has overcome most of the barriers to successful entry into the trade by offering a well-diversified assortment of arms with qualities that other Third World nations find particularly attractive. In fact, some of Brazil's wares are so attractive that sales have not been limited to the developing states, but have also found recipients amongst the industrialized world, as well. What makes this even more remarkable is that Brazil has managed these achievements in a relatively short time, making its mark as one of the world's top exporters of arms in less than two decades.

This chapter deals with the development of the Brazilian arms industry. It is broken into two historical periods, prior to 1964, during the very early years of setting a foundation for the Brazilian arms industry, and after 1964, when the industry actually developed into the form in which it exists today. Finally, a review of the Brazilian decision-making process in the sale of arms offers a glimpse of the actors which influence the Brazilian system of arms exports.

1. Data Availability

A problem common to all arms transfers data is that different sources use different methods for compiling and representing data, which accounts

for one reason why information on transfers, even over the same time frame, may differ. It is extremely difficult to obtain accurate and reliable data on Brazilian arms exports because the Brazilian production and transfer of arms is generally shrouded in a veil of secrecy by the Brazilian government. Sales are often disguised under a variety of categories which make transactions very difficult to uncover. An armored vehicle, for example, might be registered for export to Libya by the Carteira de Comercio Exterior (CACEX), the foreign trade department of the Bank of Brazil, as part of "other automotive vehicles," or as "any other part and piece for non-automotive vehicles," or under a variety of other imaginative categories.[275] This also holds true for figures on Brazilian military expenditures since "military spending falls under a number of budget heads beyond those of the army, navy and air force."[276]

Few published figures are available on Brazilian arms exports. Government figures are often low, while the industrialist, eager to attract new customers, may cite inflated figures. High inflation rates compound the difficulty in arriving at a final estimation of the value of these transactions. Therefore, even "reliable" sources, such as the yearly Stockholm International Peace Research Institute (SIPRI) reference, World Armaments and Disarmament, may not be completely accurate. However, because these sources do follow a consistent process of data collection on an annual basis,

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[275]Scott Tollefson, "Introduction," Brazilian Arms Sales and Foreign Policy: The Search for Autonomy, PhD Dissertation, Johns Hopkins University School of Advanced International Studies, (May, 1991), p. 11.

[276]SIPRI Yearbook 1988, World Armaments and Disarmament, (New York: Oxford University Press, 1988), p. 151.

they are reliable for indicating relative trends in Brazilian exports. So, with this caveat, tables and figures in this essay are presented at face value.

2. The Development of an Arms Industry

The overriding characteristic that separates the Brazilian arms industry from other Third World producers is "partnership with, and not monopolization by, the state."[277] The relationship between industry and the state finds its roots in early twentieth-century Brazilian history, when it was recognized that a strong industrial base was a prerequisite for developing and maintaining a viable defense industry. An alliance was formed between the state, industry, and the military. The military acts as the liaison between the state and industry, as a partner and representative of both entities. The military consciously exerts its influence on both industry and the state to ensure that the needs of Brazilian national security are served. Thus, it is the military which has guided the scope and direction of the Brazilian arms industry. Today, the economic reality of finances inspires both the state and the military to follow a pragmatic approach to commerce by giving industry relatively free reign to export. So, instead of forcing the production of arms only on the military wish list, Brazilian defense firms receive the political and financial support necessary to develop products which cater to international demand, too.[278]

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[277]Patrice Franko-Jones, "'Public Private Partnership:' Lessons From the Brazilian Arms Industry," Journal of Interamerican Studies and World Affairs, (Winter 87-88; Vol. 29, No. 4), p. 46.

[278]Franko-Jones, "Public Private Partnership," p. 41.

a. The Early Years

The Brazilian motivation for the development of an autonomous arms industry is rooted in events that took place over a century ago. They stem from perceptions of vulnerability and lack of control over their own destiny because of an inadequate defense posture. These perceptions were first realized in the mid-nineteenth century when Brazil suffered setbacks at the hands of Paraguay. During the Paraguayan War, fought between 1864 and 1870, the small state of Paraguay was able to successfully defend itself against the tripartite coalition of Brazil, Argentina, and Uruguay. The poor showing of the alliance surprised Brazilians and cast real doubt on Brazil's ability to secure its own borders. Furthermore, a historic rivalry between Brazil and Argentina convinced the Brazilian military that the possibilities for future conflict were not remote. The Paraguayan War thus served as a catalyst for the creation of the first powder and cartridge factories in Brazil in the 1870s.[279]

Brazil, however, was an agricultural nation. The Brazilian military recognized at an early stage that effective military strength and the further development of an arms industry would be contingent upon developing an independent industrial base if such a goal was to be supported. It would take well over half a century before such an infrastructure could be created.

> The Brazilian philosophy of Seguranca e Desenvolvimento, that view of national security which postulates that economic growth is a prerequisite for national security, stipulated that simply developing an armaments industry separate from the larger industrial process was folly.[280]

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[279]Clovis Brigagao, "The Brazilian Arms Industry," Journal of International Affairs, Vol. 40, No. 1 (Summer, 1986), p. 104.

[280]Patrice Franko-Jones, "'Public Private Partnership:' Lessons From the Brazilian Arms

Between the tail end of the nineteenth century and 1930, Brazil began a very tentative process of transforming from an agricultural economy into an economy with a more diversified base. Foreign capital, especially from Britain, was a critical factor in the development of light industry and the expansion of business enterprises at the turn of the century. Growing urbanization also helped to foster the development of light industry. In 1907, for example, 57% of industrial output was based on the production of textiles, clothing, shoes, and food processing.[281] An increase in the consumption of cement and steel, as well as an increase in the importation of capital goods, indicated that the basis for heavy industry was slowly developing.

The Brazilian economy, however, continued to rely primarily on cash crops - especially coffee - for foreign exchange. In 1910, half of the nation's exports and one third of the federal resources were provided by one region, Sao Paulo, from coffee cultivation.[282] With coffee the core of Brazilian foreign exchange, the political elites were averse to change. So, with little attempt at real structural reform, a mono-crop economy subjected Brazil to the cyclic disruptions caused by changing international demand.

"The absence of a domestic industrial base meant that the armed forces were locked into dependence on foreign suppliers."[283] Problems

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Industry, " Journal of Interamerican Studies and World Affairs, (Winter 87-88; Vol. 29, No. 4), p. 47.

[281] Richard F. Nyrop, ed., Brazil: A Country Study, 4th ed., (Washington, D.C.: Government Printing Office, 1983), p. 6.

[282] Robert G. Wesson and David V. Fleischer, eds., Brazil in Transition, (New York: Praeger Publishers, 1983), p. 9.

[283] Stanley E. Hilton, "The Armed Forces and Industrialist in Modern Brazil: The Drive for Military Autonomy," Hispanic American Historical Review, Vol. 62, No. 4, (November, 1982), p. 632.

associated with dependence on foreign suppliers of arms included the purchase of inferior items that were either badly damaged or unusable; the purchase of items that deteriorated in the Brazilian climate; and the purchase of items that were incompatible with other weapons and ammunition in the Brazilian inventory. In addition, the delay between the purchase and the arrival of goods was not only an irritant, but could prove hazardous during a crisis.

The unpredictability of foreign suppliers was underscored by the onset of World War I when Brazil's access to her major source of arms - Germany - was cut off by the war. By the end of World War I, there was universal discontent within the Brazilian officer corps in regard to the material plight of the military. Brazil sought to purchase arms from France, the United States, Britain and Italy but could ill-afford to purchase their costly hardware. Thus, in the presidential address to Congress of 1919, Brazilian President Moreira da Costa Ribeiro stated that the development of an indigenous arms industry was to be a primary national security objective of Brazil, with the purpose of gradually freeing Brazil from foreign dependence.[284]

A major question arose concerning the kind of relationship that should be established between the private and the public sector in industry. As early as 1908, one Brazilian minister of war, General Hermes da Fonseca, had openly argued that "the state, as an industrialist, should undertake no action except to fill gaps left by private industry; [and] never to compete with

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[284]Frank D. McCann, "The Formative Period of Twentieth-Century Brazilian Army Though, 1900-1922," Hispanic American Historical Review, Vol. 64, No. 4, (November, 1984), p. 762.

it."[285] Consensus amongst the military elite corroborated this assessment, believing that the profit-incentives of the private sector would ensure the more efficient production of superior products.

> The need to balance both economic and commercial imperatives in the Brazilian defense industry finds its roots in Brazil's development philosophy and its vision of the role of the state in the process of modernization.[286]

In concert with this thinking the military targeted the metallurgical industries for development. Since only a very few small steel mills existed in Brazil in the early 1900s, self-sufficiency in steel was a necessary goal if the foundation of an arms industry was to be created. The Wenceslau Bras Law was enacted, in 1918, as authorization for governmental loans to encourage private production of steel. In 1923, this law was revised to guarantee profit incentives for cooperating firms.

b. Setting the Foundation

1930 is a crucial turning point in Brazilian history. Using broad executive powers, President Getulio Vargas (1930-1945; 1950-1955), began to institute vast structural changes in Brazil. A critical proponent for "progressive nationalism," Vargas used his long tenure to implement large-scale industrial reform, the bedrock that was to enable the rapid growth of the Brazilian arms industry in the 1960s.

In a virtual dictatorship, from 1937 to 1945, Vargas encouraged the development of heavy industry through policies aimed at import-substitution industrialization. Protective tariffs were raised to help nurture

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[285] Hilton, "Industrialist," p. 643.

[286] Franko-Jones, "Public Private Partnership," p. 47.

infant industries and the use of domestically acquired resources and products was increased. As a result, iron, steel, and cement production expanded tremendously. Between 1930 and 1940, the number of industrial plants in Brazil tripled and the annual rate of industrial production grew at 11% annually.[287] Industrialization also spawned new services and technologies, including communications, road, and railroad networks.

Vargas forged a careful alliance with the military, using them as an agency of national reconstruction. In many ways, both the military's self-image and its view of the nation were interwoven.[288] (As a result of long experience with dependence on foreign arms suppliers, it had become the mission of the Brazilian military to wage a campaign for an autonomous arms industry). In a repeat of World War I, the start of World War II reemphasized the importance of independence. The British blockade of Europe terminated the delivery of arms which Brazil had purchased from Germany, forcing Brazil to seek arms elsewhere. The United States offered military assistance if Brazil would sign Lend-Lease. In compliance, Brazil joined the war against its former trading partner, sending a 25,000 troop expeditionary force to fight in Italy - even though Brazil considered Argentina, and not the Axis powers, its primary threat.[289]

Definitive strides were taken to develop the military-industrial autonomy of Brazil in the 1940s. The list of civilian industries collaborating with the Brazilian military was growing. Certainly the circumstances of

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[287] Werner Baer, The Brazilian Economy: Growth and Development, 2nd ed, (New York: Praeger Publishers, 1983), p. 15.

[288] McCann, "1900-1922," p. 738.

[289] Hilton, "Industrialist," p. 651.

World War II served as a catalyst for propelling the development of defense-related industries. The founding of a broad alliance between the state and private industry promoted the production of military products - especially since the state offered industry special incentives, such as exemptions and guaranteed profits, to "turn defense."

The Ministry of War worked to ease the barriers to infant companies by insuring the provision of military technical assistance, licensing, and various forms of financial backing. Research and development labs, a weapons testing lab, technical schools, and even defense oversight agencies were founded to create the necessary defense research and development infrastructure. Additionally, the procurement and use of domestically produced goods became dictum. If local procurement was not possible, then all attempts would be made to ensure that technology transfers were written into contracts.

By the 1950s, industry was expanding at a rate of 8% a year, with an average annual increase in the Gross Domestic Product of 6.8%. Brazil basked in a "special relationship" with the United States, who was inundating Brazil with American dollars and surplus military equipment. For the first time in Brazil's history, "internal demand rather than external factors provided the stimulus for economic growth."[290] In 1952, Brazil signed a defense agreement with the United States, joining the U.S. Military Assistance Program (MAP) and ensuring the flow of aid. Ironically, the Brazilian defense program slowed during this period,[291] perhaps as a result of greater

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[290] Nyrop, Country Study, 20.

[291] This can be contrasted with the effect of becoming a pariah state, such as South Africa, whose arms industries developed specifically because of being boycotted.

reliance on U.S. paternalism, but Brazil had finally developed the industrial capacity to support an indigenous arms industry.

c. From Net Importer to Net Exporter

In 1964, a military coup in Brazil signaled a new era. The military would remain in power for twenty-one years. It was during this time that the Brazilian arms industry mushroomed and entered into the export market. Three distinct periods have been identified by Clovis Brigagao in the development of the modern Brazilian arms industry: 1964-1967; 1967-1978; and 1978 to the present.

The first phase coincides with the military administration of General Castello Branco. By the early 1960s the Brazilian economy had begun to lag. Brazil fell short on its foreign debt payments. In an effort to revitalize the economy, the military government instituted the Plan of Industrial Mobilization. Excess capacity in such industries as steel, automobile, aeronautics, and electronics, were harnessed to help modernize the aging American military surplus in the Brazilian inventory. Increasing U.S. involvement in Vietnam helped spur these efforts as restrictions on the U.S. MAP program and dwindling American military surplus stemmed the flow of military aid to Brazil. The Brazilian government began to subsidize greater expansion of the civilian industrial base into the production of defense equipment, such as trucks, jeeps, and communications gear. The aim of the military government was to make the infant defense industry the most modern sector of the Brazilian industrial economy.[292]

Alexandre de Barros points out that the military was one of the few

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[292] Brigagao, "Brazilian Arms Industry," p. 106.

institutions that had been able to think of the development of the arms industry as a long term investment.[293] Indeed, since the 1930s and 1940s, the military had been training specialists in steel technology, telecommunications, and engineering-related fields. Some officers were sent abroad to study technical fields, others pursued degrees at the Brazilian Military Institute of Engineering. In the mid-1950s, the Air Force started the Aeronautic Institute of Technology (ITA) in the town of Sao Jose dos Campos for college-level training. Also located in this same complex was the Aerospace Technical Center (CTA), which had originally been established for research purposes in 1945. In 1961, a privately-owned research and design facility to produce rockets, the Brazilian Aerospace Industry, Inc. (Avibras), was also founded in Sao Jose dos Campos in order that it could collaborate with CTA.[294] This town represents the embryo of the Brazilian arms industry.

The second phase of development of the modern Brazilian arms industry coincided with the Brazilian "economic miracle" (1967-1974), a period of phenomenal economic growth and activity. In the mid-1960s, Branco had instituted a "gradual" approach to reviving the economy from the recession of the early 1960s. The initial lack of confidence in the new military government by foreign and domestic investors had changed by the beginning of the second military administration. Under General Artur da Costa e Silva, one of the more authoritarian of the Brazilian military presidents, the economy began to flourish. Annual real growth of the GDP

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[293] Alexandre de S.C. Barros, "Brazil," in Arms Production in Developing Countries: An Analysis of Decision-Making, ed. James Everett Katz, (Lexington, MA: D.C. Heath and Company, 1984), p. 75.

[294] Barros, "Brazil," p. 76.

surged to an average of 11.3 %, with industry finally emerging as the leading sector.[295] An expansionary government policy, merged with the attempt to harness the idle industrial capacity from the previous administration, sparked an economic boom period. Combining this with a new favorable international environment, Brazilian exports increased an average rate of 27% a year.[296]

A specific import substitution policy was aimed at the defense sector. U.S. decisions to limit military technology transfers, such as when the United States terminated MAP grant aid to Brazil in 1968 because of an arms control dispute, accelerated Brazilian initiatives to develop their domestic military production. While previous government initiatives to stimulate private industry's involvement in the defense sector had met with some success, they were hampered by the relatively low level of manufacturing technology available in Brazil. However, by the late 1960s the Brazilians were making rapid advances in the sophistication of their production processing. In 1968, for example, a privately-owned engineering firm in Sao Paulo, Specialized Engineers, Inc. (Engesa), produced the prototypes for its first armored and amphibious vehicles, the Cascavel and the Urutu, using completely indigenous Brazilian technology. These prototypes met the Brazilian Army's specifications for durable, domestically-produced cross-country vehicles to replace their aging U.S. military trucks. Then, in 1969, a semi-public firm was established, the Brazilian Aeronautics Company (Embraer), to manufacture and market civilian and military aircraft. This company was designated by the Brazilian government to be the organ for

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[295] Baer, Brazilian Economy, p. 98.
[296] Baer, Brazilian Economy, p. 104.

managing all future government aircraft manufacturing programs.[297]

In 1973, the quadrupling of world oil prices, combined with a relatively low total of government defense requisitions, created a financial crisis for the nascent defense industry. Obviously, in an industry that relies on expensive research and development, the costs can be enormous. This problem was solved in three ways. First, was the encouragement of coproduction ventures with European firms - to be established in Brazil under the approval of the Brazilian military. Second, the government dramatically increased borrowing of foreign capital to help fuel post-1974 economic growth. The military was then able to use the power of a nonpublic governmental directive (secret decree) to increase the military share of the federal budget so that greater funds could be allocated to military research and defense-related firms could be assisted through "credits."[298] Third, Brazil started to switch from import substitution to export promotion of its military hardware. Since Brazil was unable to sustain the production runs required to make the defense industry cost-effective based on internal demand from the military, a new emphasis on penetrating foreign markets and entering joint ventures became the key to continued growth and development of the Brazilian arms industry.

The first major Brazilian international arms sales were delivered by Engesa, in 1974, to Libya and Bolivia. The sales total was $65 million. By contrast, the sum total of Brazilian arms export sales between 1954 and 1973

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[297] Rexford A. Hudson, "Brazil's Foreign Military Sales Program," Department of Defense intelligence document, Defense Intelligence Agency, (31 January 1985), p. 3.

[298] Brigagao, "Brazilian Arms Industry," p. 107.

was $14.1 million.[299]

The Brazilian War Materiel Company (Imbel) was created, in 1975, under the direct control of the army to help mobilize investment and commercialization of the export/import needs of the Brazilian defense industry. Imbel's policy for foreign companies that wanted to set up shop in Brazil requires that they "bring capital, technology and, most important, the addresses of international customers."[300] In 1982 the chairmanship of Imbel was switched from military to civilian hands to encourage greater efficiency, but it is still a mixed enterprise that has representatives from the state and the military.[301]

In response to harassment by the Carter administration over reported Brazilian human rights violations, in 1977, the military government of General Geisel formally renounced the 1952 defense pact with the United States. By severing military assistance ties with the United States, Brazil entered into a new phase of indigenous armaments development. Brazilian arms exports were soon to rival the exports of more traditional crops such as coffee and sugar.

By the 1980s, Brazil was transformed from being a net importer of arms, to being a net exporter. Over 80% of the equipment used by the Brazilian armed forces was indigenously manufactured.[302] As an example of the growing strength of this industry, between 1982 and 1986, Embraer's

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[299] Hudson, "Foreign Military Sales," p. 4.

[300] Brigagao, "Brazilian Arms Industry," p. 108.

[301] 90% of Imbel is now private, although 51% of the voting stock is controlled by the government. Franko-Jones, "Public Private Partnership," p. 32.

[302] Alan Riding, "Brazil's Burgeoning Arms Industry," The New York Times, (3 November, 1985), p. 4 F.

exports increased from $95.1 million to $375 million per year. Three production aircraft, the Bandeirante, the Brasilia, and the Tucano, have all witnessed strong international sales. In 1987, Embraer earned approximately $380 million in export revenues. Embraer is now the largest aircraft manufacturer in the Third World, and it is focusing a greater proportion of its sales towards the developed world. On the other hand, Engesa is now recognized as the largest exporter of armored, wheeled vehicles in the world.[303] Engesa and Avibras are concentrating sales in the developing world.

In 1985, the military finally returned to the barracks. Curiously, during the military's tenure in government, much of the their hardware was aging U.S. surplus. The military was averse to increasing military outlays for their own benefit whilst they retained the power of government. Alfred Stepan quotes Admiral Maria do Amaral Oliveira, then-commandant of the Brazilian Superior War College (ESG), in 1981:

> We have been restricting ourselves in weapons requests in order to get a good image as a government. It is hard to ask a military government for this support because we are government. It will be easier for the military to advance our legitimate claims against a government led by a civilian."[304]

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[303] Franko-Jones, "Public Private Partnership," p. 58.

[304] Alfred Stepan, Rethinking Military Politics: Brazil and the Southern Cone, (Princeton, NJ: Princeton University Press, 1988), p. 57.

3. Brazilian Arms Industry Today

Brazil has become one of the ten largest exporters of arms in the world,[305] and is arguably the largest in the Third World.[306] Brazil exports between 85-90 percent of the arms which it produces, and SIPRI contends that Brazil is the Third World country with the greatest potential for growth in arms production.[307] In the 1980s, Brazil has been variably listed as ranking between fifth and eighth in the value of its arms exports, depending on the particular year and the particular source. Although there is a quantum difference in the level of sophistication and total arms production and exports of Brazil compared to the front-running developed nations, such as the United States, the Soviet Union, France, and Great Britain, Brazil has developed a reputation as a reliable source for simple, durable, and operationally effective weapons systems.

Three factors help influence Brazilian sales contracts. First, Brazilian prices are generally very reasonable - an important consideration for resource constrained Third World nations; second, Brazil entertains payment in various forms, including barter; and third, Brazilian transactions are not normally complicated by overly political entanglements, such as "end-use" restrictions. Only two nations are currently known to be black-listed as recipients of Brazilian arms exports - South Africa and Cuba.

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[305] Michael Brozoska and Thomas Ohlson, Arms Transfers to the Third World, (New York, NY: Oxford University Press, 1987), p. 112.

[306] Michael Kepp, "Brazil Now Largest Supplier of Arms to Third World," San Diego Union, 28 February, 1988, p. 21.

[307] Herbert Wulf, "Arms Production in the Third World," in World Armaments and Disarmament: SIPRI Yearbook 1985, (London: Taylor & Francis, 1985), pp. 332 as cited by Scott Tollefson, "Introduction," p. 1.

a. The Brazilian Arms Process

The following section will examine the general decision-making process that is followed in the transaction of a sale - including the major actors and their roles in the Brazilian arms industry.

(1) Policy. There are few formal laws that govern the sale of Brazilian arms, but rather a set of diplomatic, security and commercial formalities. However, Brazilian arms sales are guided by a policy known as the National Policy for the Export of Military-Use Material (PNEMEM). Developed in the 1970s, the PNEMEM provides a framework for coordinating arms sales decision-making procedures. While the initial sales process was laborious and time-consuming, with one report stating that 700 signatures were required for the approval of a sale, this process has been streamlined in the intervening years to cut down on bureaucratic delays.[308]

> Rather than using armaments as a political tool, the government encourages the companies to treat their products as economic goods, to be traded commercially just so long as such sales do not come into direct conflict with, or undermine the foreign policy objectives of the government.[309]

The PNEMEM states that only government-to-government sales are allowed. The Brazilians are very strict about this rule. Prospective sales must withstand the test of government approval, on a case-by-case basis. However, several of the other stated policies are not necessarily adhered to as closely, but are weighed on a pragmatic, cost-benefit basis. To enumerate on only a few, it has been variously stated that Brazil will not sell to belligerents,

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[308] Tollefson, Part II, Chapter 4, "Brazilian Arms Sales: The Policy, In Principle and in Practice," p. 159.

[309] Franko-Jones, "Public Private Partnership," p. 60.

nor will they sell to regions that may be destabilized by such a sale. While the Brazilians may usually follow this maxim, this has certainly not always been the case. Iraq, for example, was a Brazilian customer during the Iran-Iraq War,[310] and it has also been reported that Iran may have been as well. The Brazilians also claim no requirement for the signature of an "end users certificate," a restriction that limits the resale of purchased armaments without prior approval of the original supplier nation. While this is normally true, there are occasions when sales have been restricted because of political embarrassments that a recipients re-transfer may have caused. Tollefson cites the suspension of Brazilian arms sales to Libya in 1983 as a result of reports that the Libyans had transferred Libyan rockets to the Palestinian Liberation Organization.[311]

(2) Process. The approval of arms sales is a highly centralized process in Brazil. Members of the Brazilian government and military appear to be involved in all aspects of the foreign military sales process. Since each case is different, the actual process of approval may vary, but final approval will rest in the hands of a few major actors.

If a prospective sale exists, Brazilian manufacturers must usually receive official government approval to deal with the client country prior to holding negotiations of any kind. Requests for arms purchases are passed by the Brazilian military attache in the prospective client country to the National Security Council (CSN), Itamaraty (Ministry of Foreign Relations), or the respective company. A foreign request is often made through one of

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[310]Michael Brzoska and Thomas Ohlson, Arms Transfers to the Third World, 1971-85, (New York, NY: Oxford University Press, 1987), Appendix 1, p. 191.

[311]Tollefson, Part II, Chapter 4, p. 163.

the major Brazilian arms companies, which must then apply for an export license through the Brazilian government. Subsequent negotiations with the client country are handled "in-country" by the respective Brazilian military attache, often in coordination with a representative from the Brazilian defense firm involved.[312]

Authorization for the sale is a closely handled process by which prospective arms sales are first presented to the CSN for approval. The CSN is the major decision-making forum in which Brazilian arms sales are authorized. The CSN is headed by the president of Brazil, and also includes the vice president, the civilian cabinet ministers, the chief of the military cabinet (who doubles as the general secretary of the CSN), the ministers of the three military services, the chief of the General Staff of the Armed Forces (EMFA), and the chief of the National Intelligence Service (SNI).

Although consensus on a sale is not required, there is an elaborate consultation process within the CSN. The actual process is often decided by the particular style of the presiding secretary general, who is the most prominent actor in the implementation of the sales authorization process. Consultation often begins with Itamaraty because it is the formulator of Brazilian foreign policy and the major representative of civilian interests in the CSN.[313] Itamaraty has the power to veto any sale that may impact Brazilian foreign interests on a negative basis. However, Itamaraty also actively promotes arms sales that may help develop other diplomatic and

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[312] Hudson, "Foreign Military Sales," p. 16.

[313] Most of the other civilian cabinet members have little or no influence in the arms sales process.

commercial ties.[314]

Once Itamaraty renders an opinion, it will then pass the sales proposal to the relevant military ministries for their opinions. Before reaching a decision, the CSN will consider the political, diplomatic, military, and economic aspects of a sale by contacting other appropriate representatives for consultation. Questions regarding finance and export information, for example, are directed to finance and trade officials from CACEX and the Ministry of Finance. These bodies have no real influence in the process itself. If differences in opinion between the military and Itamaraty prevent a decision, disputes are resolved through reconciliation with the general secretary. Once the CSN approves a sale, the general secretary presents the document to the president for final authorization. A presidential veto can not be overruled.[315]

Although Itamaraty and the military are the major elites in the sales authorization process, there is also close cooperation with other actors out of the formal framework of PNEMEM. These include the manufacturers, the Congress, the press, public opinion, and interest groups. By far the most significant of these informal actors are the manufacturers. Their pro-sales lobby is very strong, and may actually equal the influence of the formal actors in some cases. The manufacturers also enjoy a close relationship with the military. The press can also indirectly wield influence, especially if it can disclose embarrassing information. Still, the press is usually noted for being positive towards the arms industry. Finally, Congress, public opinion, and

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[314]Brazil is one of only a couple of countries which distributes a national merchandise catalog of weapons for sale.

[315]Tollefson, Part II, Chapter 5, "Brazilian Arms Sales: The Decision-Makers," pp. 175-193.

other interest groups are generally marginalized and have little influence in the overall decision-making process of an arms sale.[316]

b. Governmental Research Support

Embraer, Imbel, and Emgepron are the three official entities through which the Brazilian government coordinates assistance for the aviation, ordnance, and naval industries. Embraer serves as the organ for the management of all government-related manufacturing programs. Imbel regulates the ordnance sector, and Emgepron coordinates the naval sector.

Embraer and Imbel's roles have been briefly described before. Emgepron was created in 1982, uniting the Navy Yard, the munitions center and the artillery factory. Emgepron promotes new arms industries in the naval field, offers the necessary technical and financial assistance for research and development of new projects, and it also provides expertise and assistance in handling contractual negotiations.

Research and development of weapons systems involves cooperation of the state (for technical and financial support), the military, and private companies. The military directly controls the research activities of the major Brazilian defense firms, who often collaborate with weapons development projects through the military research institutes. The Army Technological Institute (CTE) works on the development of ordnance technology which can then be used by the private sector for direct production. The Aerospace Technical Center (CTA) oversees five research institutes that help design, develop, and test different products that then leave the experimental stage to a company for production. Even the National

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[316]Tollefson, Part II, Chapter 5. pp. 193-224.

Intelligence School (ESN) has a research center for the security field (CEPESQ). The Bureau of Naval Engineering (AEN) and the Navy Research Institute (IPM), within their respective fields, perform similar functions as the other service research institutes. The Navy also utilizes multinational corporations, as well as private nationals, to aid in shipbuilding.[317]

c. The Elements of the Brazilian Arms Industry

The Brazilian arms industry may be broken down into three elements of manufacture - land, sea, and air - each of which is closely associated with its respective military service. The army-related sector is the largest, in consonance with the traditional role of dominance the army plays in Brazilian politics and military affairs in relation to the other services. Understanding that annual percentages will vary, army-related exports make up between 53 to 87 percent of all Brazilian arms exports. The air force sector is next in size. The non-civilian sector of aeronautical products exported under air force administration accounts for between 13 to 47 percent of total arms exports. Finally, the navy plays the smallest role in arms exports, with perhaps only 5 percent of the total Brazilian arms exports.[318] The service responsible for the weapon of manufacture represents the military in the arms sales process. It should also be noted that the military jurisdiction over different companies sometimes overlaps, such as in missiles, since military applications of certain products are not necessarily claimed by only one service.

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[317]Hudson, "Foreign Military Sales," p. 6.

[318]Variances between the first and second percentages of army and air force-related export figures were tabulated for 1984 and 1987, respectively. Tollefson, Part II, Chapter 5, "Brazilian Arms Sales: The Decision-Makers," The Search for Autonomy, pp. 198-199.

Within each sector, industry usually cooperates with the military in the development and manufacture of arms. The military generally encourages the production of weapons which the military requires before the production of export models. The infrastructure of the Brazilian arms industry consists of both private and public concerns. In both cases, whether operated by the state or private individual, arms-related companies receive state subsidies, tax incentives and exemptions, and research and development support. This support has been crucial to the growth of these industries. The most oft-cited figures state that there are approximately 100,000 persons currently employed in about 350 individual firms involved in the arms industry in Brazil. Three of the largest and best known companies are Engesa, Avibras, and Embraer.

(1) Land. The development, production, and sale of arms by Engesa and Avibras are generally overseen by the Brazilian Army. Engesa is a company that has traditionally been considered the industry pacesetter. The company is led by Jose Luiz Whitaker Ribeiro who is the personification of the Brazilian armaments industry. Engesa's reputation has been staked on the production of extremely reliable and durable armored vehicles, such as the EE-9 Cascavel, the EE-1 Urutu, and the latest, the EE-T1 Osorio - a 40-ton tank that represents the culmination of technological advances in Brazil.[319] Avibras is a private company that manufactures a variety of artillery rocket systems, incendiaries and bombs. The Astros II rocket family are their most well-known and exported product. Another firm, Imbel, is state run and

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[319]However, it may also be noted that the Osorio may be bankrupting the company. This new tank is much more expensive than its predecessors and sales are very sluggish in the late 1980s - especially since the termination of the Iran-Iraq war.

manufactures ordnance and small arms. It is a combination of former state arsenals and other state enterprises in munitions.

(2) Air. The Brazilian Air Force is generally responsible for the oversight of Embraer. Embraer is a mix of private and state ownership, and has a strong international reputation for aeronautical products. It manufactures a wide-range of light to medium civilian aircraft as well as military aircraft. The EMB-312 Tucano trainer is being bought by both developing and developed countries alike. In collaboration with the Italian companies of Aeritalia and Aermacchi, Embraer has also been contracting for the co-production of the AMX, a sub-sonic tactical jet.

(3) Sea. An indigenous naval industry is still emerging in Brazil. The least developed of the arms industry sectors in Brazil, the Brazilian Navy lags behind its military counterparts in domestic arms production. Purchasing most of its equipment from abroad, the Brazilian Navy produces relatively little indigenously.[320] Until recently, most of the ships and weapons systems the Brazilians have owned were procured from the United States. Indeed, having recorded a long relationship with the United States Navy, even the tactics and strategic concepts the Brazilian navy employs are of U.S. origin. The Brazilian navy is the most pro-U.S. of all the Brazilian services.[321]

Partly due to the expense of naval shipbuilding but mainly because of the high technology required for naval vessels and naval weapons systems, Brazilian naval arms production is the least developed sector of the Brazilian arms industry. Naval construction has been limited mostly to smaller craft,

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[320] Master's Thesis by Sandra Nichols Ellis, "Naval Technology Transfer and Arms Trade: The Brazilian Connection," (Monterey, CA: Naval Postgraduate School, June, 1988), p. 3.

[321] Personal interview with Meredith Harpine, Brazilian Analyst with the South American Branch of the Defense Intelligence Agency, Washington, D.C., 18 July 1989.

such as patrol boats, although larger naval ships such as the British Niteroi-class ASW frigates are now being constructed under foreign partnership.[322] Naval exports have been confined to regional sales of a limited number of patrol boats. Out of the ninety-eight Brazilian military export agreements reported by Louscher and Salomone, for example only seven were navy related and, of these, none was totally indigenous.[323] Still, since the second largest shipyard in the world, next to Japan, is in Rio de Janeiro, the Brazilians certainly have the capacity to build more complex naval vessels if they can acquire the necessary technology.

(a) Technology Transfers. The National Institute of Industrial Property (INPI) is the Brazilian agency in charge of technology transfer. It establishes the rules and policies for using patents and regulates the transfer of technology. Technology transfer agreements are divided into five categories: patent license agreements; trademark license agreements; industrial technology license agreements; technological and industrial cooperation agreements; and technical service agreements.[324] Welcoming the import of new technology, such as that which originates in the United States, Japan and the Netherlands, Brazil adapts it for domestic consumption, but then vigorously promotes the adaptation of this technology to products for export.

Still, the more sensitive naval technologies that Brazil

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[322]Michael Brzoska and Thomas Ohlson, Arms Production in the Third World, (London: Taylor & Francis, 1986), p. 82.

[323]David Louscher and M. Salomone, Marketing and Security Assistance, (Lexington: D.C. Heath and Company, 1987), pgs. 118-119, as cited by Ellis in "Naval Technology Transfer and Arms Trade," p. 32.

[324]World Bank, Brazil. Industrial Policies and Manufactured Exports, Washington, D.C., 1983, p. 100, as cited by Ellis in "Naval Technology Transfer and Arms Trade," pgs. 20-21.

desires are difficult to acquire, especially from the United States. Brazil has not signed the U.S. General Security of Military Information Agreement (GSOMIA), the bilateral government-to-government agreement that protects U.S. military technology transferred to a signatory country, so Brazil is limited by the U.S. National Disclosure Policy (NDP-1) to a lower category of technology than it might otherwise receive from the United States.[325] It is true that the Brazilian Navy and civilian industry are tightly bound in the naval shipbuilding industry, but unlike the other services, few active duty naval officers currently serve in defense companies. As a result, the problems of technology transfer to third parties may be mitigated. Indeed, one analyst has stated that the Brazilian Navy will not sell to pariah countries.[326] If this is the case, naval export sales would remain in-line with U.S. requirements. Of course, it may just be that the expense of military hardware restricts the availability of clients. On the other hand, if civilian industry can not be coerced to follow the lead of the Brazilian Navy, technology 'leaks' would probably occur. In any case, until Brazil signs GSOMIA, the point is moot and naval technology transfers from the United States will remain limited.

Brazil continues to pursue a higher level of self-sufficiency in its nascent naval arms industry, but without U.S. technology, Brazil is forced to rely on European suppliers. It is a process which has generally followed the following format: 1) The purchase of second-hand vessels; 2) The purchase of new vessels; 3) The licensed building of new vessels; 4) The redesign of foreign vessels; and 5) The production of an original domestic

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[325]Personal interview with Bill Withers, OP-615, Technology Transfers, Pentagon, Washington, D.C., 20 July,1989.

[326]Personal interview with Meredith Harpine, DIA, Washington, D.C., 18 July, 1989.

design.[327] It is a process of stages requiring both time and money.

(b) Budget Cuts. Military budget cuts are a significant problem since they affect the Brazilian Navy disproportionately as a result of the growing obsolescence of their fleet. Because of the current budget crunch in Brazil, the scheduled updating and refit of many of the older Brazilian naval vessels has been postponed. The cancellation of programs such as the Barracuda anti-ship missile and the Avibras SSA-N-1 surface-to-air missile programs have certainly been a blow to Brazilian attempts for self-sufficiency, as well. Still, the recent transfer of four decommissioned *Garcia*-class ships from the United States to Brazil and the acquisition of other vessels, such as four ex-U.S. *Charles F. Adams*-class missile destroyers,[328] is a positive indicator for the Brazilian Navy.

(c) Threat. Changes in threat perceptions have motivated the military to invest more heavily in the naval sector. Although the Brazilian navy has been traditionally accorded a lower priority in the Brazilian military hierarchy, the Navy is currently the only service in Brazil that has an external focus. It is also the only service with force projection capabilities. The growing importance of trade has increased awareness and concern over control of the sea lines of communication in the South Atlantic. This has provided the Navy a small advantage over its sister services in the battle of the budget.

Indeed, while the Brazilian Army has experienced tremendous cuts, forcing the cancellation of Ground Forces 1990, a major

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[327] Farooq Hussain and Robert van Tol, "Naval Exports: Problems of Technology Transfer," Naval Forces: International Forum for Maritime Power, No.II, Vol VII, (1986), p. 20.

[328] Norman Friedman, "World Navies in 1992," Proceedings, (March,1992), p. 133.

build-up program for the Army, support for specific Navy programs, such as their conventional and nuclear submarine programs, have become a priority.[329] Germany's *Howaldtswerke* has already delivered the first of four Type-1400 class submarines to Brazil, and the other three are being built under an indigenous design schedule in Brazil.[330] And while it is estimated that the earliest possibility that a Brazilian nuclear submarine will enter service is in the year 2010, the Brazilians already have a primary circuit and zero-power reactor in operation.[331]

4. Summary of Findings of Brazilian Arms Industry

Brazil offers the most opportunities for cooperative programs with the United States in Latin America. With arms export sales going to as many as forty nations of the world in the mid-1980s, the Brazilians developed a solid reputation as a reliable supplier of durable, relatively inexpensive weapons which met the needs of their recipients. By the late 1980s, the Brazilians were making over $1 billion a year in transfers. Indeed, by making money off of low to mid-technology arms exports, Brazil ranked as one of the world's top ten exporters of arms. However, the 1990s have not been good for the Brazilian arms industry. The global recession, the end of the Iran-Iraq War and continuing economic problems in Brazil which severely impact the budget available for the military has hamstrung the Brazilian arms industry. Now entering into the development of more sophisticated weapons systems,

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[329] Personal interview with LTCOL David A. Pagni, USA, the Senior Political-Military Estimator for Latin America at the Defense Intelligence Agency, Washington, D.C., 18 July 1989.

[330] Robert L. Scheina, "Regional Reviews: Latin American Navies," Proceedings, (March, 1989), p. 128.

[331] Scheina, "Latin American Navies," Proceedings, (March, 1989), p. 128.

both for export and for domestic use, several problems loom on the horizon that Brazil will need to face as it forays beyond the niche that it has developed in the world arms market.

First is the problem of finance. While Brazil has now become a strong actor in the international economy, with a 1990 gross domestic product of $326 billion - a larger GDP than all the rest of South and Central America combined,[332] Brazil is also hampered by debt. Brazil owes $118 billion in foreign debt alone. Debt servicing quickly cuts into any surplus and reduces the net. A change in interest rates, such as the sharp increase of about three percentage points in international interest rates between the first quarter of 1988 and the first quarter of 1989,[333] adds to the burden of Brazil's debt servicing. The Brazilian federal budget has been squeezed. Higher levels of weapons sophistication require more expensive outlays for research, development, and production. Federal funds for such projects may not be available without greater foreign capital. Advanced tactical fighters, nuclear submarines, and large warships are risky investments for a nation whose financial solvency may be at the whim of creditors. Indeed, the financial difficulties of the Brazilian arms industry are symbolized by the recent bankruptcy of Engesa, the former industry pacesetter, which had racked up a $400 million by 1992. As a result of the lack of hope for profitability, Engesa is now being turned into a state enterprise.[334]

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[332]Source is the Inter-American Development Bank, as cited in The Christian Science Monitor, (18 March 1992), p.10.

[333]John T. Norman, "Latin Nations' Export Earnings Are Up, But Problems Offset Gains, IADB Says," The Wall Street Journal, (11 September, 1989), p. A-15B.

[334]Eliana Simonetti, "Com Dinheiro do povo," Veja, 8 April 1992, 78-80, as cited by Scott D. Tollefson, Assistant Professor, Department of National Security Affairs, Naval Postgraduate School, Monterey, CA, in "U.S. Brazilian Security Relations: Implications for

Second, is a lack of high levels of technology. It is doubtful Brazil can conquer the technological barriers for developing more sophisticated weapons systems without access to the higher technology of the United States or other traditional developed suppliers. While coproduction and technology transfers have been an important factor in the Brazilian acquisition of higher levels of technology, these have been carefully orchestrated efforts to wean Brazil from dependence on foreign sources. Brazil may have to accept the consequences of greater foreign influence if it desires to obtain the higher technologies of such systems as supersonic jet engines.

Third, Brazil has staked its reputation on marketing lower tech exports. The niche carved by Brazil had been relatively lucrative and was not crowded by the level of competition faced in the high tech export market. If Brazil attempts to break into the hi-tech market alone they can expect great difficulty earning a profit in a market which volume sales are generally lower. In addition, many of Brazil's traditional recipients may not be able to afford the new weapons, and other nations may prefer to buy weapons at the more advanced end of the spectrum from the U.S., the Europeans or Russia.

Ultimately, Brazil must address its lack of end-use restrictions. If Brazil desires higher levels of technology transfers, it will have to greater accommodate the wishes of the supplier. Brazil has been very aggressive in pursuing technology transfers from the United States, but the United States is hesitant to increase its present relationship with Brazil without a greater show of responsibility and accountability on the part of Brazil. The potential

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Civil-Military Dynamics in Brazil," a paper presented at the XV Encontro da Associacao Nacional de Posgraduacao e Pesquisa em Ciencias Sociais (ANPOCS); Grupo de Trabalho Forcas Armadas, Estado e Sociedade; Caxambu, Minas Gerais; 15-18 October 1992, p 21.

increase in the intensity and lethality of conflict that more sophisticated weapons present requires an increase in the concern towards the final destination of exported arms. At the time of the Iraqi invasion of Kuwait, for example, approximately 500 Brazilians representing privately-owned Brazilian arms firms were in these two countries. One of these firms, HOP, headed by retired Brazilian Air Force General Hugo de Oliveira Piva, apparently employed a group of engineers from various countries to help Iraq develop its missile program. Since these were not government employees, they could not be ordered to cease their cooperation with Iraq.[335] As both counselor and decision-maker in the authorization and sale of Brazilian arms, changes in the attitude of the Brazilian military towards observing a more rigorous screening of potential clients may be the ticket towards greater accountability within the entire Brazilian arms sales process. Certainly, such a change would be met with a greater willingness by the United States to invest in cooperative projects with Brazil. At the present, however, this seems unlikely. A strong sense of nationalism continues to linger amongst the Brazilian elite which will likely prevent any significant technology transfers with the United States.

On a positive note, Brazil, along with Argentina and Chile, has finally pledged to ratify the 1967 Treaty of Tlatelolco, after the pact was amended to ensure the safeguarding of industrial secrets. Already ratified by 24 other Latin American countries, the treaty prohibits the production, stockpiling and use of nuclear weapons in Latin America.[336] However, although it is a step

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[335]Robert L. Scheina, "Regional Naval Reviews: Latin America," Proceedings, (March, 1991), p. 89.

[336]"Latin America: 3 Nations to Join Latin Nuclear Treaty," The San Francisco Chronicle, (27 August 1992), p. A-15.

in the right direction, the United States will not transfer hi-technology data to Brazil until they have signed the U.S. General Security of Military Information Agreement. Itamaraty, and especially the military-industrial alliance, continue to place higher priority on independence in the commercial trade of arms than towards a more "responsible" approach to arms sales. Therefore, prospects for U.S.-Brazilian armaments cooperation, if any, will remain limited to lower level technologies.

IV. CONCLUSIONS

The thesis argues that U.S. naval strategy needs revision. With the collapse of the Soviet Union, the relative importance of the Third World to U.S. security is increasing, as evidenced by recent events, such as Desert Storm and the crises in Somalia and former Yugoslavia.

The thesis makes a case for a greater focus of the U.S. maritime strategy on Latin America. Latin America is no longer a backwater region. As a region that offers both threat and opportunity, the United States must attempt to control the threats and harness the opportunities. Latin American threats to U.S. security include political instability, debt, drugs, insurgency, terrorism, illegal immigration, and threats to the environment. Opportunities range from trade to military security. These points suggest that the U.S. must better address its relationship with Latin America as the region becomes increasingly important to the United States, thereby serving as an introduction to a new maritime strategy.

The thesis also argues that if the United States seeks to open greater avenues to international armaments cooperation, such as in Latin America, a building block process is required that would allow such a complex venture to be accomplished. In other words, the pursuit of such a venture requires that it first be viewed as appropriate in the national interest. Once a strategy that emphasizes the integration of the other nations of the Western Hemisphere gains support, the potential increases for a Third World nation to become a viable partner of the United States in the research, development and production of armaments.

Successful armaments cooperation requires that the parties involved are mutually interested and in agreement over the particulars of such an endeavor. Politics can play a very large part in this process. The thesis argues that military interests between nations are in greater alignment when they coincide with national interests. Hence, it is important to outline a cooperative maritime strategy that will help induce a mutuality of national interests before undertaking military-industrial cooperation.

The thesis makes the case that Brazil has the greatest potential of any Latin American nation to become a viable partner of the United States in both naval maritime pursuits and in armaments cooperation. With the world's eighth largest economy, 150 million people and a broad industrial base, Brazil is the dominant actor in the region. Brazil also boasts the most powerful naval force in Latin America and maintains the most capable and well-diversified indigenous arms industry in Latin America.

So, what is the potential for a U.S. Brazilian partnership in this endeavor? Limited. The following reasons define the nature of the problem from the U.S. perspective:

*The problem is primarily a political one. Brazilian foreign policy is nationalistic, aggressively pursuing Brazilian interests. Sovereignty issues and Brazil's goal of leading the developing world tend to alienate the United States.

*Although Brazil has made strides in controlling the transfer of sensitive technologies, it still does not observe the stringency of standards that the United States would like Brazil to enforce. Instead, Brazil has been cited for

exporting weapons to nations whom the United States has banned from sales, such as Iraq. The United States is loathe to transfer sensitive technologies to Brazil unless it is felt that Brazil will live up to a higher standard of conduct in the international arena.

*Brazilian foreign relations have become more diversified, as exhibited in the process of its regional integration with Argentina, Uruguay and Paraguay, and in developing closer relations with Europe and with the Far East.

*President Collor de Mello's resignation in December 1992 and his succession by Itamar Franco suggest political instability in Brazil. The military may be regaining some of their previously lost-prerogatives.

*Brazil stems also faces economic constrains. High debt, high inflation and a budget squeeze have severely restricted Brazilian investment into the defense industrial and military infrastructure. Indeed, the Brazilian arms industry is on the verge of collapse. Operational commitments have also been restricted, allowing Brazil's naval fleet less sea time.

*While Brazilian naval capabilities are significant, particularly by Third World standards, there is a quantum difference in the level of their maritime power projection capabilities than those of Great Britain or France. Budget problems have precluded greater investment into the training and equipment that would enable the navy to pursue a fuller range of capabilities. However, the presence of Brazil's navy in the region of the Atlantic Narrows and a capability to perform coastal patrol, anti-submarine warfare, convoy escort duties and some measure of force projection could provide the United

States with the additional assets needed to become force multipliers during a time of war.

*Economic concerns in the United States also play a role. Although the U.S. Department of Defense is seeking alternative sources for parts, components and even larger ticket items, the Buy America Act, labor unions and unemployed workers will argue that jobs and money should not be squandered overseas but used instead to counter the loss of domestic defense industry firms. U.S. shipyards, for example, are functioning well below capacity.

The following reasons define the nature of the problem from the Brazilian perspective:

*Brazilians are sensitive to the presence of the United States in the region. They are concerned with U.S. desires to expand influence in Latin America.

*Brazilians are reticent to give up their independent foreign policy agenda, especially for the sake of the United States.

*Brazilians are highly critical of U.S. restrictions on technology transfers and question the fairness of U.S. arms transfers policy.

*Brazil is concerned with equity in armaments cooperation. The lessons from the NATO experience in international armaments cooperation illustrate that U.S. involvement often means U.S. leadership and control.

The bottom-line is that the potential for a U.S.-Brazilian partnership is low. Operationally, the outlook for the future of the Brazilian navy is that it will continue to function at their current rate. Little expansion of the Brazilian fleet is expected and Brazil will probably have difficulty in replacing, let alone updating, its aging fleet. Still, the active participation of Brazil in bilateral and multilateral activities with the United States helps to improve both navy-to-navy and country-to-country relations.

The potential for U.S.-Brazilian armaments cooperation is also low. Any possible endeavors will probably be limited to the mid-to-low technology spectrum. While Brazil has actively engaged the United States and Europe for technology transfers, Brazil does not yet have ready access to the higher levels of technology which it seeks in order to break into the upper end of the arms market. Under the current circumstances, it is doubtful that the United States will make such access available to Brazil unless the United States perceives a significant change in Brazilian foreign policy. However, the U.S. does require greater access to part and component support for its defense base, much of which is at the low and mid-technology range of development - exactly the arena in which the Brazilians have excelled. In addition, by supporting the U.S. maritime strategy Brazil would not only improve mutual security but would increase the potential for armaments cooperation with the United States.

Further study needs to be conducted into the types of parts, components and equipment which the United States desires and which the Brazilian firms might be willing to coproduce. Additionally, study into the capabilities of the other maritime nations of Latin America may reveal a niche market within

which the United States may find a more willing and compliant partner than Brazil.

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